RESILIENCE AS A FUNCTION OF RETROSPECTIVE MEMORY OF EARLY LIFE STRESSORS

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Jessica Lynne Bryan

UNIVERSITY OF DAYTON

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APPROVED BY:

John R. Korte, Ph.D.
Faculty Advisor

David W. Biers, Ph.D.
Committee Member

Donald J. Polzella, Ph.D.
Committee Member

CONCURRENCE:

David W. Biers, Ph.D.
Chairperson, Department of Psychology

ABSTRACT

RESILIENCE AS A FUNCTION OF RETROSPECTIVE MEMORY OF EARLY LIFE STRESSORS

Bryan, Jessica Lynne
University of Dayton

Advisor: Dr. John Korte, Ph.D.

Children and adolescents in today's society are faced with a multitude of stressful events throughout their young lives. They are subjected to parental drug use, divorce, poverty, and numerous other stressful life events. Accordingly, research has focused on high-risk populations who are subjected to numerous stressful life events, as these children and adolescents tend to suffer the greatest negative impact. However, a small subset of this population, despite these risks, turn out to be resilient individuals who bounce back or recover from early life stressors.

In comparative psychology, at least one study of human and one study of animal subjects suggest that a moderate amount of stress and/or a moderate amount of felt stress may contribute to the development of resilience. The hypothesis of the current study was that college students who have experienced a moderate amount of stress during childhood would be more resilient than college students who have experienced either minimal or extreme stress during childhood. This relationship between early adverse experiences and later levels of resilience was hypothesized to represent a curvilinear relationship.

Participants were 164 students enrolled at the University of Dayton in an introductory psychology course. A modified version of the Coddington Life Events Scales was used to assess the number and intensity of stressful life events experienced by college students during their first twelve years of life. The Personal Views Survey Third Edition-Revised (PVS III-R) was used as the measure of resilience. Two-step curvilinear regression analyses were used to determine the nature of the relationship between past stressors and present resilience. Results showed no linear or curvilinear relationship between history of early life stressors and later levels of resilience. During secondary analyses with the demographic variables in the present study, participants who have been in psychotherapy (compared to those who have not) reported more early life stressors and less resilience, participants who have taken psychotropic medication (compared to those who have not) were less resilient, and participants who used alcohol (compared to those who have not) reported more early life stressors.

Results of primary analyses did not support the hypothesized curvilinear relationship, but results were also inconsistent with past research indicating that more early life stress results in lower levels of resilience. Possible reasons for this lack of findings are discussed.

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CHAPTER I

INTRODUCTION

Modern life is inherently and inevitably stressful. Children and adolescents are forced to deal with the demands of war, the possibility of sexual, physical, or emotional abuse, growing up in divorced or one-parent households, drug use, HIV, poverty, homelessness, and numerous other stressful life events. Yet, although such tumultuous events may understandably lead to problems in childhood, adolescence, and throughout adulthood, some individuals, despite it all, appear to be much more resilient than others. A resilient individual may be subjected to growing up in an impoverished environment, experience the death of a parent, or encounter numerous other major life stressors, but somehow is able to not only survive these adversities, but also thrive as a human being and effectively handle future stressors. Since it is impractical to totally eliminate all stressful life events, a more viable question becomes "how to foster resilience" so that individuals can successfully cope with the unavoidable stressors of life.

Definition of Resilience

Resilience was once believed to be a very straightforward construct. Negative events encountered were considered irrelevant; some people were simply believed to be better able to deal with stress than others (Selye, 1936). However, as research has expanded, so too has the definition and meaning of resilience. The construct of resilience

has come to be synonymous with terms like personality strength, psychological hardiness, and stress resistance (Al-Naser & Sandman, 2000). In evaluating resilience, Bernard, Hutchinson, Lavin, and Pennington (1996) defined psychological hardiness as a capacity and general coping ability that may buffer the effects of stress on health. Garmezy (1993) suggests that the central element of resilience is the power to recover and the ability to return to the patterns of adaptation and competence that characterized the individual prior to a stressful life event. Resilience has also been defined as one's ability to cope with extreme adversity (Al-Naser & Sandman, 2000) or an inner strength that enables an individual to bounce back from problems that seemingly lead to inevitable failure (Edward & Warelow, 2005). Finally, Sheridan and Radmacher (1998) conclude that resilience is a person's ability to recover or bounce back from stressful events. In conclusion, although the meaning of resilience has broadened over time, each definition emphasizes that a resilient individual possesses the ability to *recover* from *stress* or, as stated by Werner and Smith (1982), the self-righting tendencies within each human organism.

Effects of Adverse Childhood Experiences

Although it is important to define and distinguish between resilient and non-resilient individuals, the relevance of this distinction seemingly becomes a moot point when investigating the numerous, and sometimes atrocious, experiences that some children are subjected to throughout their young lives. Edwards, Holden, Feletti, and Anda (2003) addressed the negative effects of early childhood maltreatment (physical abuse, sexual abuse, and witnessing of maternal battering) on adult mental health. The authors found that 34.6% of respondents reported experiencing at least two types of

maltreatment during childhood. Correspondingly, lower mean mental health scores were associated with increasing numbers of abuse categories (e.g., a mean mental health score of 78.5 was found for respondents who reported no maltreatment, whereas those who reported one, two, and three types of maltreatment had means of 75.5, 72.8, and 69.9 respectively).

Other researchers have identified additional negative outcomes associated with the abuse and neglect of children. Harrington, Pickles, Aglan, Harrington, Burroughs, and Kerfoot (2006) found a strong association between sexual abuse in childhood and subsequent self-harming behavior (e.g., poisoning) and higher rates of psychopathology. Lowenthal (1998) reports that children who are the victims of maltreatment often have problems regulating their emotions. Additionally, James (1994) found that children who are the victims of maltreatment often exhibit hyperactivity, inappropriate social behaviors, a lack of eye contact, and may avoid intimacy. This avoidance of intimacy, as described by James, may occur because feelings of closeness typically increase corresponding feelings of vulnerability. A study by Zeanah (1993) found that children who are the victims of maltreatment may have a disturbed attachment process that may result in anger and/or resentment towards their caregivers or others with whom they develop relationships.

Victims of childhood abuse and neglect also have problems with learning and academic performance (Vondra, Banett, & Cicchetti, 1990). Finally, in a study of preschool children, Erickson, Stroufe, and Pianta (1989) found that those children who have been physically and/or emotionally abused were more likely to display angry and non-compliant behaviors, be disorganized and impulsive, have insufficient work habits

and social skills, and were less successful on academic readiness tasks. Erikson et al. also found that sexually abused children had higher levels of inattentiveness, anxiety, withdrawal, aggression, dependency on others, and need for approval when compared with their non-maltreated counterparts.

The most severe negative outcomes uncovered by past studies have been found with children who are victims of neglect (Eckenrode, Laird, & Doris, 1993; Mash & Wolfe, 1991). These studies revealed that children who are the victims of neglect, when compared with other groups of maltreated children (e.g., those who were physically abused), were the least successful on cognitive tasks and scored highest on measures of inattention, anxiety, apathy, and inappropriate social behaviors.

Resilience not only has been explored in relation to external (subjective) circumstances, but also in relation to the socio-cultural experience of being a minority. Flore, Cicchetti, and Rogesch (2005) found that maltreated Latino children evidenced a lower level of resilient functioning than their non-Latino counterparts.

Coddington (1979) examined another significant early adverse experience, the death of a family member. In his investigation of those life events that were most frequently associated with adolescent pregnancies, Coddington found that pregnant adolescents were significantly more likely to have endured the death of one or more family members than their non-pregnant peers. Coddington theorizes that some adolescent girls may cope with personal loss by forming an intimate relationship with another person, thus leading to an unplanned pregnancy. Based upon this premise, and following the lead of Holmes and Rahe (1967), Coddington (1999) developed the Life Events Scales (CLES) for children and adolescents, which is the measure of early life

events used to assess the number and intensity of experienced stressors that is used in the present study.

In an ambitious cohort study initiated in 1950, 12,150 children from Aberdeen, Scotland took part in a child development study (Lawlor, Batty, Morton, Clark, Macintyre, & Leon, 2005). Lawlor et al. (2005) investigated the relationship between low childhood socioeconomic position (as defined by the child's father's occupation at the time of birth) and cardiovascular disease risk factors later in life. In a follow-up study from 2000-2002, surviving cohort members were mailed a health questionnaire. Results revealed that a low socioeconomic position at birth, independent of attained adult social class and income, was correlated with adverse cardiovascular disease risk factors (e.g., smoking, binge drinking, being overweight).

Wicks, Hjern, Gunnell, Lewis, and Dalman (2005) also explored the link between adversity in childhood and its negative impact on later life. Specifically, they investigated all children (approximately 2.1 million) born in Sweden from 1963-1983 based on five components of a low socioeconomic position (i.e., living in rented apartments, low income, single-parent households, unemployment, and households that receive social welfare benefits) to determine a possible correlation between childhood adversity and the risk of developing schizophrenia. Wicks et al. found significantly higher rates of schizophrenia in subjects who were born or raised under conditions of social adversity (a low socioeconomic status). Specifically, those with four of the five measures of adversity had a 2.7-fold higher risk of developing schizophrenia than those with no measure of adversity.

In the United States, low socioeconomic status manifests itself to an alarming extent in similar negative outcomes. Specifically, the U.S. Census Bureau from 2000 found that 11.3% of Americans fell within the poverty rate, as defined by an income of less than $13,874 for a family of three (Seccombe, 2002). Given the negative effects associated with early adverse experiences, mental health professionals should obviously focus first and foremost on children who have been maltreated or have experienced an increased number of early adverse life events.

Effects of Resilience

In addition to the negative effects of early childhood adverse experiences, the literature also has evaluated the positive effects of being a resilient individual. A study by Kobasa (1979) assessed a group of executives over a three-year period to determine their resilience to illness. With comparable high levels of stress resulting from life events, one group was found to be much less likely to become ill, compared to another group. Discriminant function analysis revealed that the executives who were more resilient to health problems in the face of stress were generally characterized by: an internal rather than an external locus of control (or the belief that one is able to control and change events in one's life); a strong feeling and sense of commitment to self rather than alienation (i.e., clear awareness of goals, values, and capabilities one possesses); a tendency to become actively involved in one's self and environment rather than remaining uninvolved; and, the ability to deal with external stressors without viewing them as threatening to the self. Thus, the executives who had higher levels of an internal locus of control, stronger commitment to self, an attitude of vigorousness toward the

environment, and a sense of meaningfulness were less likely to suffer from health problems, and consequently, were viewed as more resilient.

Orbuch, Parry, Chesler, Fritz, and Repetto (2005) also investigated the positive effects of being a resilient individual. Orbuch et al. randomly selected 493 of 900 young adult (ages 16-28) survivors of childhood cancer to evaluate factors that contributed to a higher quality of life. Results revealed that one of the most important factors in increasing resilience in young adult survivors was the positive social support that comes from a good relationship with their parents.

Morrissey and Hannah (1986) also investigated the positive effects of psychological hardiness in adolescents. The authors sampled 317 adolescents, enrolled in grades 7 through 12, and found that benefits of being a resilient individual were similar to those previously identified by Kobasa (1979). Additionally, the finding revealed that the modified hardiness scale used in the earlier study by Kobasa and Maddi (1982) was effective in differentiating resilient versus non-resilient adolescents. Furthermore, the factor structure of this scale was analogous to that found with adults and the elderly, and included elements of commitment, control, and challenge (Morrissey & Hannah, 1986). For example, Khoshaba and Maddi (1999) conducted a study focused on the impact of early experiences on the development of resilience. Khoshaba and Maddi followed Illinois Bell Telephone employees over twelve years to investigate their level of resilience as a function of early life experiences. Although the effects of early life experiences in hardiness development will be discussed more in-depth later, the results from factor analysis revealed the same three interrelated factors of commitment, control, and challenge that were originally proposed by Kobasa (1979).

Resilience most commonly has been theoretically and empirically defined throughout the literature as a combination of high levels of commitment, control, and challenge (Ganellen & Blaney, 1984; Greef & Human, 2004; Hull, Van Treuren, & Propsom, 1988; Khoshaba & Maddi, 1999; Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982; Maddi, 2004; Maddi, Khoshaba, Persico, Lu, Harvey, & Bleeker, 2002; Morrissey & Hannah, 1986; Siddiqu & Hasan, 1998; Waysman, Schwarzwald, & Solomon, 2001). Individuals who possess a high level of commitment ("high commitment" individuals) are characterized by a generalized sense of purpose and meaning in their lives (Ganellen & Blaney, 1984). Such high commitment individuals are likely to stay actively involved in determining the direction of their lives and are persistent under pressure (Kobasa et al., 1982). A high level of control is manifested by someone who believes, feels, and has a successful influence on surrounding events (Siddiqu & Hasan, 1998). Individuals who possess this trait are more likely to view themselves as stronger or more in control when confronted with difficult circumstances (Maddi et al., 2002). Finally, challenge characterizes an individual who views change in life as normal (Funk & Houston, 1987); usually beneficial or growth facilitating, rather than burdensome (Benishek, 1996); and finds the process of learning from one's experiences, whether positive or negative, developmentally fulfilling (Maddi, 2004). Although each dimension is viewed as a contributing aspect of resilience (Maddi et al., 2002), they appear to be less effective, independently, at helping individuals cope and adapt to stressful or threatening life events than when all of these factors are working together (Jew & Green, 1998).

Resilience Controversies

Despite the fact that most research has supported the interrelated factors of commitment, control, and challenge as components of resilience, several authors have criticized this definition (Benishek, 1996; Funk & Houston, 1987; Jennings & Stagger, 1994). Benishek (1996) criticizes the idea of using the factors of commitment, control and challenge to define hardiness for two main reasons. First, he questions the numerous measures used to assess the concept of resilience. Benishek points out that if resilience were one simple construct, identified by three factors (commitment, control, and challenge), the numerous instruments designed to measure this construct would be unnecessary. Benishek identified several of these measures: the Personal Views Survey, the Dispositional Resilience Scale, the Psychological Hardiness Scale, the Cognitive Hardiness Scale, and modifications of the Abridged Hardiness Scale. Benishek also critiqued Kobasa's three-factor structure underlying the construct of resilience, suggesting that the actual number of factors underlying resilience is not clear (1996). Benishek cited studies (Funk & Houston, 1987; Manning, Williams, & Wolfe, 1988) that either did not conform consistently to Kobasa's three factors or identified a different factor structure (e.g., only the factors of commitment and control, not challenge, loaded consistently).

Jennings and Staggers (1994) also criticized Kobasa's definition of resilience (1979). The authors analyzed Kobasa's work, specifically critiquing how she identified commitment, control, and challenge as the underlying factors of resilience, as well as issues related to these three terms. First, Jennings and Staggers criticized Kobasa's definition of hardiness as being vague. The authors cited several examples of other

definitions of resilience that do not conform to Kobasa's triad of commitment, control, and challenge (Funk & Houston, 1987; Holahan & Moos, 1985; Lee, 1983; Magnani, 1990; Pollock, 1989). Additionally, the authors critiqued the variation of scoring used on revisions of Kobasa's first hardiness scale. They emphasized that scoring should remain the same when variations of Kobasa's measures are modified. However, as the field of research regarding resilience has developed, so too has the scoring methods used to evaluate and define this concept, causing necessary modifications to scoring. Finally, Jennings and Staggers questioned whether resilience can be conceptualized as a unitary construct even though it has been identified as a construct composed of multidimensional factors (i.e., Kobasa's three-factor model of commitment, control, and challenge, 1979). However, research reveals that the three factors of commitment, control, and challenge, when combined, are a reliable and consistent measure of resilience (Maddi and Khoshaba, 2001).

Resilience as a Buffer

Funk and Houston (1987) tested their skepticism that hardiness buffers the negative effects of stressful life events in a study with 120 male introductory psychology students. In this study, Funk and Houston were able to replicate the main effects for hardiness using analysis of variance. However, when using multiple regression, Funk and Houston report the buffering effects of hardiness on illness and depression were not found to be statistically significant. Additionally, Funk and Houston reported findings that were significant on only two of the three dimensions (commitment and control, not challenge) hypothesized to underlie the hardiness construct in Kobasa's Hardiness Scale (1987). Based on these findings, Funk and Houston recommended that the Hardiness

Scale created by Kobasa might be improved if it used positive (e.g., achievement, leadership, adventurousness), as well as negative (e.g., feelings of powerlessness, external locus of control, alienation from others), indicators of commitment, control, and challenge.

As suggested by Funk and Houston's research, previous hardiness scales have been modified. However, the characteristics of a resilient individual consistently identified in the literature continue to be high scores in commitment, control, and challenge (Ganellen & Blaney, 1984; Hull et al., 1988; Khoshaba & Maddi, 1999; Kobasa, 1979; Kobasa et al., 1982; Maddi et al., 2002; Morrissey & Hannah, 1986; Siddiqu & Hasan, 1998; Waysman et al., 2001). Thus, the present study takes into account the criticisms of the previously mentioned authors by using the Personal Views Survey Third Edition-Revised (PVS III-R). Specifically, the PVS III-R is a modified resilience scale that includes negative and positive indicators of resilience. Additionally, the PVS III-R has been modified to include the 18 most reliable items from the original Personal View Survey.

Development of Resilience

Several investigators have addressed the question of how resiliency traits develop, but results have been inconsistent. One of the most well known attempts to clarify the developmental roots of resilience is a longitudinal study by Werner (1992) that began in Kauai, Hawaii in 1955. This 32-year study assessed various aspects in the development of the 698 children born in 1955 on the island of Kauai. The study initially was intended to evaluate children's susceptibility to negative outcomes due to exposure to perinatal stress, poverty, maternal lack of formal education, parental psychopathology, and chronic

discord and disruptions in the family unit. Of these 698 children, approximately one-third of the infants were considered "at-risk" because they were subjected to four or more of the previously mentioned life stressors before the age of two years. Of these 201 "at-risk" children, Werner attempted to identify those factors that laid the foundation for resilience, i.e., enabled some children to successfully cope with such biological and psychosocial risk factors, compared to their less successful peers. Why did one-third of the high-risk children, nearly 10% of the total cohort, develop into competent, confident, and caring young adults, whereas the other two-thirds of the high-risk children experience negative outcomes, including serious learning or behavior problems, delinquency, mental health problems, and/or teenage pregnancy (Werner, 1989)?

The results of the 32-year study not only replicated the negative outcomes generally experienced by high-risk, non-resilient children that have been found in numerous other studies (e.g., delinquency, mental health problems) (Benishek, 1996; Cohen, 1991; Hunter & Chandler, 1999; Kobasa, 1979; Kobasa et al., 1982; Waysman et al., 2001), but also revealed five clusters of protective factors that seemed to aid in the development of resilience. First, resilient children had temperamental characteristics that elicited positive responses from adults (e.g., active, affectionate, easy to handle). Thus, caregivers were more likely to respond in favorable ways than would be the case with children whose temperamental characteristics tended to elicit negative responses (e.g., fussy, poor eating habits, irregular sleeping patterns). Second, resilient children were more likely to have skills, responsibilities, and values that led to an efficient use of the abilities they possessed (e.g., realistic vocational plans and regular household chores). Third, characteristics of the parents and their caregiving style were likely to have an

impact on the children's level of resilience (e.g., mother's level of education and the rules and discipline strategies used in the household). The fourth cluster of protective factors that aided in resilience was the presence of positive and supportive adults in the child's life. These adults (e.g., parents, grandparents, mentors, members of the church, etc.) helped to foster trust and build lasting social supports for these at-risk children. Werner notes, "The resilient youngsters in our study all had at least one person in their lives who accepted them unconditionally (pg. 264)." Finally, individuals who were more resilient tended to have more opportunities become available (for whatever reason) during points of major life transitions (e.g., job opportunities after high school or acceptance into the military) (Werner, 1992).

Similar protective factors were identified by Tiet, Bird, Hoven, We, Moore, and Davies (2001) when they studied the development of resilience in cases of maternal psychopathology. The authors obtained data from the National Institute of Mental Health (NIMH) Methods for the Epidemiology of Child and Adolescent (MECA) Mental Disorders Study. Subjects (1285 dyads of youth and caregiver) were sampled from four different geographic sites in Connecticut, Georgia, New York, and Puerto Rico. Ages of the children ranged from 9 through 17 years. Results of this study revealed that 28.6% of mothers reported some lifetime psychiatric problems (depressive symptoms, 12.1%; medication for psychological problems, 8.6%; and serious mental illness, 5.8%). In addition to maternal psychopathology, the effect of the children's exposure to adverse life events was also evaluated. The findings revealed that resilience was generally characterized by several protective factors, including lower levels of adverse life events, closer parental monitoring, better family functioning, higher educational aspirations from

parents, absence of maternal psychopathology, higher IQ of the child, better physical health of the child, and a larger number of other adults in the family. When looking specifically at those youth who were originally labeled high-risk due to the identification of maternal psychopathology, those children who were more resilient received closer parental monitoring, lived in a better functioning family, had a higher IQ, and were more likely to be female.

Khoshaba and Maddi (1999) evaluated the developmental roots of resilience as well. They blindly interviewed a subsample of Illinois Bell Telephone (IBT) managers who scored either very high or very low in hardiness to determine their early life experiences. The content of the statements from managers who scored high in resilience were characterized by a disruptive and stressful early life and characterized also by having people around them who encouraged them to be successful and turn adversity into opportunity.

While the Kauai Longitudinal Study (1992), Tiet et al. study (2001), and Khoshaba and Maddi study (1999) identified possible protective factors that foster the initial development of resilience in childhood (e.g., lower levels of adverse life events, child's temperament, social supports, and parental monitoring), The Rochester Child Resilience Project (RCRP) (Cowen, Work, & Wyman, 1997) focused more on the continual development of factors of resilience (e.g., problem-solving skills, empathy, and adjustment). The RCRP was a decade-long series of studies that also attempted to clarify the developmental roots of resilience. The RCRP focused on children from eleven inner-city schools who were subjected to four or more major life stressors (subjects throughout the study had experienced, on average, eight to nine major life stressors). Researchers in

the RCRP used two separate cohorts of children: initially fourth, fifth, and sixth graders; then second and third graders. Additionally, children in these cohorts were classified as either stress affected (SA) or stress resistant (SR) children. Although both subgroups of children shared the common risk factor of exposure to numerous chronic and severe early life stressors, the two groups were differentially characterized. Stress affected children were rated by their parent(s) and teacher(s) as poorly adjusted and scoring in the bottom one-third of screening measures used. On the other hand, stress resistant children were rated by their parent(s) and teacher(s) as well adjusted and in the top one-third of screening measures used (Cowen, Work, & Wyman, 1997).

The results from the RCRP identified several significant differences between SA versus SR children. In addition to the differential characteristics of scoring in the top one-third versus the bottom one-third on adjustment measures, stress resistant fourth, fifth, and sixth graders scored higher on five specific areas: including global self-worth, empathy, realistic control attributions, social problem-solving skills, and self-esteem (Cowen et al., 1997).

After analyzing the data of the fourth, fifth, and sixth graders, the authors conducted a similar study with the younger group of second and third graders. Characteristics which differentiated SA's and SR's in this younger cohort were nearly identical to those found in the older group. Stress resistant second and third graders had higher levels of empathy, social problem-solving skills, realistic control attributions, and IQ when compared to stress affected children. Although findings across the two age groups were similar in actual characteristics, results from the second cohort of younger children were significantly less pronounced. Thus, the difference between resilient

children and non-resilient children on measures of self-perception, social relationships, and school achievement become more apparent with age (Cowen et al., 1997). Accordingly, it then becomes a point of interest to study an even older population (e.g., older adolescents or college students).

Overall, protective factors found in the literature can be categorized into three sets of variables (Masten & Garmezy, 1985). The first category includes characteristics of the child, such as temperament, IQ, and self-esteem. The second category includes family characteristics, such as family life stressors, family structure, and family functioning, including parents' discipline styles. The third category includes other support systems, such as adults and role models outside the immediate family that encourage, support, and positively reinforce the child (e.g., grandparents, teachers, coaches, pastors, etc.).

For the Conference on Community Violence and Children's Development, Garmezy (1993) examined how resilience develops in children despite the risks they faced when raised in poverty. In his literature review, several risk factors were found consistently throughout the literature, including stressful life events within the family unit, marital instability, low socioeconomic status, parental criminality or psychopathology, and lack of familial or social support. Amidst these adversities, Garmezy's review of the literature found three reoccurring factors that seemed to enable individuals to overcome life's stressors. First, Garmezy identified temperament factors, including activity level, reflectiveness, cognitive skills, and a positive response to others. Second, Garmezy's search revealed a protective family factor that included families (including those in poverty) who were marked by warmth, cohesion, and the presence of a caring adult to take responsibility in the event of marital discord or unresponsive

parents. Finally, Garmezy found that the presence of external supports (e.g., teacher, neighbor, parents of a peer) influenced an individual's resilience in disadvantaged settings and despite disadvantaged circumstances.

To assist with enhancing resilience in students, the Cleo Eulau Center (CEC) was founded in 1994 to provide resilience training to teachers who work with at-risk student populations (Jacobsen, 2005). Through the CEC Resiliency Consultation Program, teachers become equipped with skills that assist them in having a positive influence on the lives of their students. By aiding teachers in this way, the CEC's goal is to give students the opportunity to develop a caring relationship with an adult (their teacher) who believes in them, points out their strengths and challenges, helps them succeed in school and in life, and conveys hope about their future. Results of the efficacy of this program are currently being researched, but have not yet been published. However, preliminary data suggests that teachers have been able to impart knowledge and hope to their students, both of which have been shown to support resilience and increase the likelihood of successful outcomes for at-risk youths.

In addition to programs implemented to increase resilience in at-risk children, teenagers, and adolescents, programs have been constructed to treat adults who were exposed to stressful life events as children. At a six-week inpatient trauma treatment program for adults abused as children, researchers found that the treatment had significantly improved (change in severity of posttraumatic stress disorder symptoms) at discharge, as well as 6 months and 12 months post discharge, when compared to participants who were placed on a waiting list (Stalker, Palmer, Wright, & Gebotys, 2005).

Thus, the literature regarding resilience has addressed numerous questions, including construct definition and components of resilience, possible protective factors, potential negative outcomes (e.g., mental health problems, illness), and specialized treatment programs. For the most part, this research has been done with high-risk children who, by definition, have experienced numerous adverse life events. The focus has been on those youth who have experienced significant life stressors, rather than on those individuals who are not "high risk." The majority of these high-risk children (those who have been subjected to approximately four or more adverse life events) suffer negative outcomes in childhood (e.g., learning or behavior problems, delinquency) and throughout adulthood (e.g., higher levels of physical illness, mental health problems). However, a small subset of high-risk children, despite adversity, appear to be resilient and evolve into competent adults possessing high levels of commitment, control, and challenge.

Adversity as a Factor in Resilience Development

In spite of the research done with resilient versus non-resilient high-risk individuals, little attention has been given to the broader picture of adverse life events and resilience. To gain perspective of this broader picture on the development of resilience, one may consider the effects of war in and around the 1940's. At the beginning of World War II in 1939, approximately 750,000 British children were evacuated from the cities and moved to the countryside to protect them from the danger of air raids. Estimates suggest that of these 750,000 children, several thousand were evacuated with their mothers and the remaining majority were evacuated without either parent (Odlum, 1948). With such a large number of evacuated children, the degree of

potential negative impact would be expected to vary widely. However, the consensus of research done with evacuated children at that time suggested that the mental health of children left in London with their parents was better than evacuated children who were separated from their parents. These results were found despite the highly stressful experience of being subjected to air raids while remaining in British cities (Geleerd, 1942; Henshaw & Howarth, 1941). Contrary to what one might expect, remaining in the midst of adversity in this war setting appears to have had better consequences than being removed to the countryside. As stated by Freud and Burlingham (1943):

> There are so many obvious reasons why small children should not stay in London shelters…a child who is removed from London to the country is certainly removed from a state of greater danger to a lesser one… It is difficult to realize that these improvements in the child's life may dwindle down to nothing when weighed against the fact that it has to leave the family to gain them (pg. 44).

Apparently the disaster of air raids was better tolerated than was the separation from the family (despite the avoidance of air raids). Thus, in 1944 when the second wave of air raids hit British cities, children were not evacuated from the cities (Odlum, 1948).

Taken from a similar prospective, Almedon (2005) states that "in the wake of crisis such as war and/or displacement, mass trauma may not necessarily be a given." Almedon concludes that not all adverse life experiences lead to a path of trauma, pathology, or crisis.

Adverse Events in Comparative Psychology

Clearly, all individuals are subjected to stressful life events of varying number, intensity, length of time, and perception. Although the needs of high-risk individuals who experience an increased number, intensity, and duration of stressful life events

should be addressed, the remaining majority of children who are subjected to stressful life events of a lesser degree should also be considered.

One such study with rats (Gordon, 2001) investigated the effect of early adverse experiences on long-term patterns of behavior. This study obtained an overall picture of early life experiences by focusing on three groups of rats rather than just a high-risk group that is typically the focus in research with children and adolescents. The first group of rats was non-handled and the mothers and pups were never separated prior to weaning. The second group of rats was handled and was separated from their mothers for ten minutes every other day on postnatal days two through ten. The third group of rats was separated from their mothers for eight hours, also every other day on postnatal days two through ten. All three groups were weaned on postnatal day 21 and housed with same-sex littermates until assessment as adults at age 50 days. Results revealed that the first group of non-handled rats were highly reactive or impulsive, the second group of rats, separated for ten minutes every other day, had an increased adaptive capacity in response to a variety of stressors (e.g., behavior in a plus maze, light enhanced startle), and the third group of rats, separated for eight hours every other day, had a profoundly suppressed degree of exploration. As noted before, this study explored the early adverse experience of maternal absence and neglect. However, instead of focusing solely on one subset of high-risk rats, multiple levels of maternal absence and neglect were evaluated. The results showed that a moderate level of stress (maternal absence) resulted in better adaptation to future stressors than either minimal or extreme stress.

Possibly, children and adolescents develop higher levels of resilience when faced with comparable levels of stressors. Comparative psychology teaches the similarity of

behavior across species. As in rats, do human beings who experience too much or too little adversity as infants or children tend to have fewer coping skills as adults than those who experience at least some stressors as children?

The Present Study

The present study hypothesizes a curvilinear relationship between stressors and resilience, i.e., individuals who have experienced a moderate level of adverse life events during childhood, as opposed to a minimal amount of stress or an overwhelming amount of stress, will score higher on levels of resilience as adults (in the present study, as college students).

Modern life in the United States is inherently and inevitably demanding (Glassner, 1999). As it is unfeasible to eliminate all stressors faced by children and adolescents in today's society, the more practical question becomes how to best utilize life's stressors. Thus, the question at hand focuses on the possibility that experiencing some early life stressors, as opposed to extreme or minimal stress, may function to better prepare individuals to adapt to future stressors. The experience of a moderate amount of life stress during childhood and adolescence may later enable adults to better cope with the inevitable stressors that occur throughout any individual's lifetime.

At least one study of human and one study of animal subjects (cited earlier) suggest that a moderate amount of stress and/or a moderate amount of felt stress may contribute to the development of resilience. The present study will be a further test of the hypothesis using a college student cohort, subjects old enough to assess the effect of their history of stressors.

Specifically, the present study will test the hypothesis that college students who have experienced a moderate amount of stress during childhood will be more resilient than college students who have experienced minimal or extreme stress during childhood. This relationship between early adverse experiences and later levels of resilience will represent a curvilinear relationship.

CHAPTER II

METHOD

Participants

The participants were 164 introductory psychology students, most enrolled in their first year at the University of Dayton. Originally, 171 participants signed-up for the study, with 3 females and 4 males not attending the session for which they signed up. Participation satisfied part of a course requirement and participants were recruited via the Departmental online sign-up procedure.

Instruments

Demographic Information Sheet. The Demographic Information Sheet (see Appendix A) was used to ascertain pertinent identifying information regarding each participant in this study (i.e., gender, age, marital/living status, race/ethnicity, prior mental health treatment, prescribed psychotropic medication, drug use, alcohol use). Demographic information was used during secondary analysis to determine if demographic variables were another measure of the effect of the stressor (e.g., take psychotropic medication) or to determine if demographic variables (e.g., gender) were related to past perceived stress or resilience. For example, on average do males or females in this study have higher levels of resilience?

Coddington Life Events Scales. A modified version of the Coddington Life Events Scales (CLES) (Coddington, 1999) was used to assess the number and intensity of

stressful life events experienced by college students during their first twelve years of life. Specifically, participants completed two separate versions of the CLES: the Coddington Life Events Scales for Preschool Children (CLES-PS) six years old and younger (see Appendix B) and the Coddington Life Events Scales for Children (CLES-C) between the ages of seven and twelve years (see Appendix D). Coddington uses a modified version of the Holmes and Rahe Social Readjustment Rating Scale (1967) to give a Life Change Units (LCU) value to several stressful early life events (e.g., death of a friend, divorce of parents, being recognized for excelling in a sport or other activity). Coddington emphasizes that some positive events should be viewed as stressors, as did Holmes and Rahe (Coddington, 1999). Additionally, he believes that a professional (e.g., psychiatrist, counselor) cannot assume that, for example, the divorce of one's parents must be a negative event for a child or, even if a negative event, knows the intensity of the stress from the child's perspective. Thus, Coddington concludes that only that individual child can attach an intensity score to the event in question (e.g., divorce).

Coddington initially utilized a sample of 243 professionals, consisting of teachers, pediatricians, and child psychiatrists. These participants were asked to rate the amount of readjustment necessary for a child for each life event. Professionals did not significantly differ in the rank orders assigned to the items in any age group, enabling the establishments of weights for children of three different age groups (preschool, childhood, adolescence) (Coddington, 1972). Based upon the ratings of these professionals, Life Change Units (LCU) have been assigned to each life event on the Coddington Life Events Scales (CLES) of the preschool version (CLES-PS) for children under the age of 6 (Appendix C), the child version (CLES-C) for children between ages 7

and 12 (Appendix E), and the adolescent version (CLES-A) for ages 13-19. For example, on the CLES-C, a child who experienced the death of one parent 0-3 months ago would get a LCU score of 109, whereas the birth of a brother or sister 0-3 months ago has a LCU score of 50. To accommodate the use of different time intervals, a scoring system was derived to produce LCU scores for four different time frames: the past 0-3 months, the past 3-6 months, the past 6-9 months, and the past 9-12 months. Also, given that feelings related to these life events tend to decrease in intensity over time, more recent events were given higher LCU scores than events that occurred further in the past (i.e., events occurring in the last 0-3 months were given the full weight of 100 percent, events occurring 3-6 months ago were weighted at 75 percent, events occurring 6-9 months ago were weighted at 50 percent, and those occurring 9-12 months ago were weighted at 25 percent). Therefore, the previously mentioned stressor of the death of a parent on the CLES-C 0-3 months ago has a LCU score of 109, whereas this same stressor has a LCU score of 82 (or 75 percent of the full weight) if it happened 3-6 months ago, a LCU score of 55 (or 50 percent of the full weight) if it happened 6-9 months ago, and a LCU score of 27 (or 25 percent of the full weight) if it happened 9-12 months ago (Coddington, 1999). Another example on the CLES-PS: moving to a new school has a LCU score of 33 (100%) if it occurred 0-3 months ago, 25 (75%) if it occurred 4-6 months ago, 17 (50%) if it occurred 7-9 months ago, and 9 (25%) if it occurred 10-12 months ago.

The Coddington Life Events Scales are copyrighted and permission to use these scales in the present study was granted by the publisher, Multi-Health Systems (MHS) through Ms. Lisa Sorensen, Translations and Contracts Administrator, Permissions and Licensing Department.

Two versions of Coddington's Life Events Scales were used in this study, the CLES-PS and the CLES-C. Literature has shown that stressful life events experienced during early childhood are most likely to have the largest impact on later life (Benishek, 1996; Cohen, 1991; Cowen, Work, & Wyman, 1997; Eckenrode, Laird, & Doris, 1993; Edwards, Holden, Feletti, & Anda, 2003; Erickson, Stroufe, & Pianta, 1989; Hunter & Chandler, 1999; James, 1994; Kobasa, 1979; Kobasa et al., 1982; Lowenthal, 1998; Mash & Wolfe, 1991; Odlum, 1948; Vondra, Banett, & Cicchetti, 1990; Waysman et al., 2001; Werner, 1992; Zeanah, 1993), thus the preschool and child versions of the CLES were used to focus specifically on early childhood from the ages of birth through twelve years of age.

However, some modifications of Coddington's scales were necessary in the present study because the CLES-PS and CLES-C were developed to administer to children and assess only those events that occurred within the last year, whereas the present study is interested in college age students' ratings of past life experiences that occurred from the ages of 0-12. The present study eliminated the timeframes of the CLES (i.e., 0-3 months ago, 3-6 months ago, 6-9 months ago, and 9-12 months ago) and replaced those time frames with a rating scale of 1-4 (i.e., 4 = "extreme negative feelings", 3 = "high negative feelings", 2 = "moderate negative feelings", and 1 = "minimal or no negative feelings"). Consequently, participants identified which events occurred from birth to the age of 6 (up to their 7^{th} birthday) and also between the ages of 7-12 (up to their 13^{th} birthday). Then, for each affirmative event (e.g., suspension of school), participants identified how many times the event occurred (i.e., frequency of 0, 1, or 2) within the given timeframe (0-6 or 7-12 years of age) and also subjectively rated

how much of an impact they feel each of these occurrences had on their lives (i.e., intensity rating of 4-1). Similar to the scoring method used by Coddington, as mentioned earlier, that gives a full weight of 100 percent to events that occurred most recently, the present study assigned higher LCU scores to events that were rated by participants as subjectively most intense (i.e., events that are given an intensity rating of 4 by participants are given the full weight of 100 percent, events that are given an intensity rating of 3 are weighted at 75 percent, events that are given an intensity rating of 2 are weighted at 50 percent, and events that are given an intensity rating of 1 are weighted at 25 percent). For example, a participant in the present study taking the modified version of the CLES-C who endorsed the event of "suspension from school" (LCU = 30) one time and gave it an intensity rating of 2 or 50% ("moderate negative feelings") would be given an LCU score of 15 (30 x 50% x 1 = 15). Similarly, a 9-year-old who is given the original CLES and identifies that she was "suspended from school" (LCU = 30) one time 7-9 months ago (50%) would also be given a LCU score of 15 (30 x 50% x 1 = 30). Please refer to Appendices C and E for a list of life stressors and their corresponding Life Change Units scores.

By altering the CLES in this manner, the normative data and psychometric properties already established by Coddington are not applicable. The CLES was normed on a sample of 3526 children and parents who were demographically representative of Ohio's population (Coddington, 1972). When utilizing the QuikScore form of the CLES-PS and CLES-C, all LCU scores for affirmative stressors are added up. Guideline scores are given to divide participants into low (below the 25th percentile), moderate (25th to 75th percentile), and high or "at-risk" (above the 75th percentile) groups based on the number

and intensity of early life stressors. Scores at or above the 75th percentile suggest a child that should be considered at risk for physical and emotional problems. On the CLES-PS and CLES-C, children ages 0-10 with a LCU score of 50 (0-3 months ago), 95 (0-6 months ago), 110 (0-9 months ago), or 110 (0-12 months ago) are considered in the high or at-risk range. On the CLES-C, children ages 11-12 with a LCU score of 60 (0-3 months ago), 115 (0-6 months ago), 130 (0-9 months ago), or 135 (0-12 months ago) are considered in the high or at-risk range of at or above the 75th percentile.

In the present study, a total LCU score was obtained by administering and scoring the modified CLES-PS and CLES-C. A total LCU score was first calculated for the CLES-PS and the CLES-C individually, and then the two measures were combined for a total LCU score across both measures. CLES scores were calculated three separate ways because the original scoring of the CLES could not be used in this study after modifying the measure for research purposes. The three separate scoring versions were calculated in order to incorporate different aspects of the CLES and identify the impact of altering the CLES on participants' scores. The CLES (predictor variable) score used in analyses was first obtained by multiplying the LCU score by the intensity (4=100%, 3=75%, 2=50%, 1=25%) and by frequency (0, 1, or 2) to obtain a total score. For example, if a participant reported being suspended from school on the CLES-C one time under the intensity category "3", the total score for the event of being suspended from school would be 30 (LCU score) multiplied by 75% (intensity category 3) and multiplied by 1 (frequency) (30 x 75% x 1 = 23). Given the scoring modifications used with the CLES, multiplying the LCU score by the intensity and by frequency most closely corresponded to the original scoring Coddington used with the CLES. Second, a total score was obtained by

multiplying the individual LCU score for each event by the frequency (the number of times that each event was reported up to a maximum of two times for each intensity level). For example, if a participant reported being suspended from school (LCU = 30) on the CLES-C one time under the intensity category of "1" and "two or more" times under the intensity category of "3" (note, intensity is used in this example only for the purpose of making the point more clearly; intensity itself is not used in calculating the second scoring version of the CLES), the total score for the event of being suspended from school would be 30 (LCU score) multiplied by 1 (suspended one time under intensity category 1) plus 30 multiplied by 2 (suspended two or more times under intensity category 3) (30 x 1) + (30 x 2) = 90. This scoring version did not take into account intensity, thereby removing the subjective nature of the participants' responses. Finally, a total score was obtained by multiplying the intensity (4, 3, 2, 1) by the frequency (0, 1, or 2). For example, if a participant reported being suspended from school on the CLES-C two or more times under the intensity category "3", the total score would be 2 (frequency) multiplied by 3 (intensity) (2 x 3 = 6). This scoring version did not take into account Life Change Units scores, thereby theoretically lessening the variability of scores by focusing only on the intensity and the frequency of endorsed events.

Personal Views Survey III-R. The Personal Views Survey III-R (PVS III-R) (Maddi & Khoshaba, 2001) was used as the measure of resilience (see Appendix F). This scale is comprised of three subscales: commitment (a generalized sense of purpose and meaning regarding an individual's life), control (believing one has a successful influence related to surrounding events or when faced with difficult circumstances), and challenge

(the view that change in life is normal and usually results in beneficial or growth facilitating consequences, rather than negative or burdensome consequences). The subscales of commitment, control, and challenge were then combined to produce a total hardiness score.

Maddi and Khoshaba note that previous scales measuring hardiness had adequate reliability, but were typically an ineffective mixture of forced choice, rating scale items, and true-false responses. Additionally, the authors report that although the subscales of commitment, control, and challenge showed positive intercorrelations with working adults, the same results were not found with undergraduate college students. When using an undergraduate population, Maddi and Khoshaba report the subscale of challenge appeared unrelated to the subscales of commitment and control. Previous hardiness instruments revealed that the challenge items signified socioeconomic security/insecurity for working adults, whereas these same items were related to political conservatism/liberalism in undergraduate students. Therefore, Maddi and Khoshaba developed the PVS III-R, which includes a modified challenge subscale with items more appropriate for a college population, yet still reflective of the original challenge component.

Maddi and Khoshaba conclude that the PVS III-R appears to avoid the difficulties of previous measures by compiling many rating scale items to express specific aspects of commitment, control, and challenge. Further, psychometric analysis was used to yield the 18 most reliable items from the previous versions of the Personal Views Survey. This 18-item survey renders scores of commitment, control, and challenge that are internally consistent (.70 to .75 for commitment, .61 to .84 for control, .60 to .71 for challenge, and

.80 to .88 for total hardiness). The PVS III-R has also been found to be highly correlated with the earlier hardiness measure (r = .91) that included a greater number of items (Maddi and Khoshaba, 2001).

Permission to use the PVS III-R in the present study was granted by The Hardiness Institute, Inc. (Appendix K). However, the PVS III-R is copyrighted by The Hardiness Institute, Inc., and, therefore, the scoring algorithms of this measure are unavailable for the present study. The Hardiness Institute, Inc. specifically states, "The scoring algorithm is the intellectual property of the Hardiness Institute, Inc, and we do not release them under any circumstances" (Maddi and Khoshaba, 2001, page 37). Norms are provided by The Hardiness Institute, Inc. based on a sample of approximately 3000 adolescents and adults (ages 15-74), including 45% males and 55% females, 73% of whom were working. Maddi and Khoshaba indicate that percentile scores in the 40% to 60% range are considered to reflect average ability to effectively cope with stressful life events. Scores above or below this average range signify above average or below average hardiness scores, respectively (Appendix G). Participants' responses to the PVS III-R were scored online using the Hardiness Institute, Inc. scoring procedure. To complete scoring of the PVS III-R, each participant's response set was forwarded to the Hardiness Institute via their internet database, scored, and a raw score was returned. Specifically, raw scores range from 6-18 on the Commitment Scale ($\underline{M}$ = 12, $\underline{SD}$ = 3), from 3-17 on the Control Scale ($\underline{M}$ = 10, $\underline{SD}$ = 3), from 3-17 on the Challenge Scale ($\underline{M}$ = 10, $\underline{SD}$ = 3), and from 12-52 on the Total Hardiness Scale ($\underline{M}$ = 32, $\underline{SD}$ = 7).

Due to the fact that this is a confidential research study, participants were not required to complete the portion of the PVS III-R that asks for name, address, phone

number, or code letter. Additionally, the demographic information section of the PVS III-R (e.g., age, gender, religion) was not completed because this information is redundant with the present study's Demographic Information Sheet (Appendix A). Demographic information does not alter the scoring algorithms of the PVS III-R.

Procedure

Upon arriving at the designated room, participants were told about their rights as a participant, the manner in which the confidentiality of their responses would be maintained, and asked if they had questions (Appendix H). Participants were asked to sign an informed consent statement (Appendix I). Subjects were given the demographic information sheet (Appendix A) and the two primary instruments of the study (CLES, PVS III-R) (Appendix B-F) and asked to complete them in the order in which they were distributed. One-half of participants were given the modified CLES-PS/CLES-C first and the remaining half of participants were given the PVS III-R first to counterbalance the order of instruments. Participants were reminded that there are two versions of the modified CLES. The first version is looking back at their early life stressors from ages 0-6, which includes up until their 7^{th} birthday. The second version of the modified CLES is looking back at their early life stressors from ages 7-12, which includes up until their 13^{th} birthday. Following completion of the study, participants were given a debriefing sheet (Appendix J).

CHAPTER III

RESULTS

In this study, the CLES is the independent (predictor) variable and measure of experienced stress. The PVS III-R is the dependent (criterion) variable and measure of resilience. Table 1 summarizes the range of scores, means, and standard deviations for participants from the three ways of scoring the modified versions of the CLES Total, CLES-PS, and CLES-C; as well as the PVS III-R Total and the PVS III-R subscales. The CLES was used as the predictor variable and scores were calculated three separate ways for analyses, as described in the method section. First, the CLES score was obtained by summarizing the individual LCU score by intensity (4=100%, 3=75%, 2=50%, 1=25%) and by frequency (0, 1, or 2). Second, the CLES score was obtained by summarizing the individual LCU score multiplied by the frequency (0, 1, or 2). Finally, the CLES score was obtained by summarizing the frequency of stressors (0, 1, or 2) multiplied by their intensity (4=100%, 3=75%, 2=50%, 1=25%). However, the participants' total CLES scores calculated using these three scoring methods were found to be highly correlated with Pearson coefficients of .894 for versions one and two, .971 for versions one and three, and .845 for versions two and three. Because of the high intercorrelations of the three measures and for the sake of brevity, the remainder of the results section will refer only to the first scoring version of the modified CLES, as this version most closely

resembles Coddington's original scoring of the CLES. However, all major analyses were run using all three scoring version of the modified CLES and results were the same.

Table 2 summarizes the correlation matrix of the CLES-Total, CLES-PS, CLES-C, and the PVS III-R Total and its three subscales (Commitment, Control, and Challenge). As indicated in Table 2, the CLES-Total score was highly correlated with the CLES-PS and CLES-C, with Pearson coefficients of .875 and .942, respectively. The CLES-PS and CLES-C were also highly correlated with each other, with a Pearson coefficient of .662. In addition to high intercorrelations on this study's measures of early life stressors, results on the PVS III-R Total and its subscales were also highly correlated. As indicated in Table 2, resilience, as measured by the PVS III-R Total, was highly correlated with the Commitment, Control, and Challenge subscales, with Pearson coefficients of .767, .682, and .715, respectively. The Commitment, Control, and Challenge subscales were also significantly correlated with each other. Despite the high intercorrelations within the CLES and the PVS III-R, these measures of experienced stress and resilience were not correlated with each other on the total scale or any of the subscales.

In the present study, two-step curvilinear regression analyses were used to determine the nature of the relationship between past stressors and present resilience. Regression analysis was used first to test for a linear relationship between experienced stress and resilience. Next, regression analysis was used to compute the curvilinear component and determine if, beyond the linear relationship, this component contributed to the relationship between experienced stress and resilience. Table 3 summarizes the

Table 1

Summaries for the CLES (Scoring Methods 1, 2, and 3) and the PVS III-R Range of Scores, Means, and Standard Deviations

Variable	Low Score	High Score	M	SD
CLES-Total-1	72	1440	385.78	263.26
CLES-PS-1	11	884	148.79	117.92
CLES-C-1	37	907	236.99	169.95
CLES-Total-2	211	2307	718.43	373.30
CLES-PS-2	42	1055	294.76	175.39
CLES-C-2	95	1409	423.67	227.47
CLES-Total-3	7	151	42.66	28.27
CLES-PS-3	1	77	15.45	12.09
CLES-C-3	5	97	27.21	18.39
PVS III-R Total	17	47	35.93	5.07
Commitment	4	21	15.31	2.55
Control	3	14	9.32	1.98
Challenge	4	18	11.29	2.49

Note. Scoring method 1 = LCU x Intensity x Frequency
Scoring method 2 = LCU x Frequency
Scoring method 3 = Frequency x Intensity

results found after performing three linear and quadratic regression analyses, all with the PVS III-R Total as the criterion variable, but with the CLES-Total, the CLES-PS, or the CLES-C as the predictor variable. Figures 1, 2, and 3 illustrate scatterplots for these analyses. As seen in Table 3, the three analyses did not indicate a linear or curvilinear relationship between the CLES (Total, PS, or C) and the PVS III-R Total. However, the quadratic or curvilinear relationship between the CLES-PS and the PVS III-R Total approached significance ($p = .073$).

Table 4 summarizes the results found for the three linear and quadratic regression analyses, all with the CLES-Total as the predictor, but with the Commitment subscale of the PVS III-R, Control subscale of the PVS III-R, or the Challenge subscale of the PVS III-R as the criterion variable. Figures 4, 5, and 6 illustrate scatterplots of these analyses. As seen in Table 4, the three analyses did not indicate a linear or curvilinear relationship between the PVS III-R (Commitment, Control, or Challenge subscales) and the CLES-Total.

As a secondary component of analyses in this study, demographic variables (e.g., gender) were analyzed to determine their relationship to stressors and resilience. Table 5 summarizes the frequencies of the demographic variables investigated in the present study. Modifications were made to the data set after data collection due to the limited variation of responses in selected categories. Thus, the variables of psychotherapy, psychotropic medication, drug use, and alcohol use were recoded. For each of the variables of psychotherapy, psychotropic medication, drug use, and alcohol use; the

Table 2

Correlation Matrix using Pearson Correlation of the CLES-Total, CLES-PS, CLES-C, PVS III-R, PVS Commitment Subscale, PVS Control Subscale, and PVS Challenge Subscale

	CLES-PS	CLES-C	PVS III-R Total	PVS III-R Commitment	PVS III-R Control	PVS III-R Challenge
CLES-Total	.875**	.942**	-.031	.051	-.098	-.045
CLES-PS	1.00	.662**	.021	.075	-.031	-.016
CLES-C		1.00	-.062	.027	-.131	-.058
PVS III-R Total			1.00	.767**	.682**	.715**
PVS III-R Commitment				1.00	.350**	.263**
PVS III-R Control					1.00	.241**
PVS III-R Challenge						1.00

Note. N = 164 for all scales
** $p < .01$

Table 3

Linear and Quadratic Regression Analyses Completed with the PVS III-R Total (Criterion Variable) and the CLES-Total, CLES-PS, and CLES-C (Predictor Variables)

	PVS III-R Total	
	Linear	Quadratic
CLES-Total	$t = -.393$ $p = .695$	$t = -1.558$ $p = .121$
CLES-PS	$t = .270$ $p = .788$	$t = -1.805$ $p = .073$
CLES-C	$t = -.796$ $p = .427$	$t = -.870$ $p = .386$

"now" and "prior" descriptors were combined into one category "yes" and compared to participants who indicated "never."

Independent samples t-tests were completed with each of the demographic variables to determine if differences existed between these variable subcategories on history of early life stressors (CLES-Total) and resilience (PVS III-R Total). Tables 6-10 summarize analyses for all of the demographic variables. The variables of living status, race/ethnicity, and religion were not included due to insufficient variance within each group (i.e., within the living status category, 98% of the total sample were single; within the race/ethnicity category, 95% of the sample were Caucasian; and within the religion category, 77% of the sample were Catholic and the remaining 23% were scattered among nine different subgroups).

An examination of gender differences on CLES and PVS III-R scores indicated no differences between males and females on either of the scales or any of the subscales (See Table 6). An examination of differences on CLES and PVS III-R scores between participants who have and have not undergone psychotherapy/counseling indicated that those individuals who have received psychotherapy, compared to those individuals who never received psychotherapy, reported more stress on the CLES-C and were less resilient as measured by the PVS III-R Total, the PVS III-R Commitment subscale, and the PVS III-R Challenge subscale (See Table 7). An examination of differences on CLES and PVS III-R scores between participants who have and have not taken psychotropic medication indicated that those individuals who have taken psychotropic medication, compared to those individuals who have never taken psychotropic

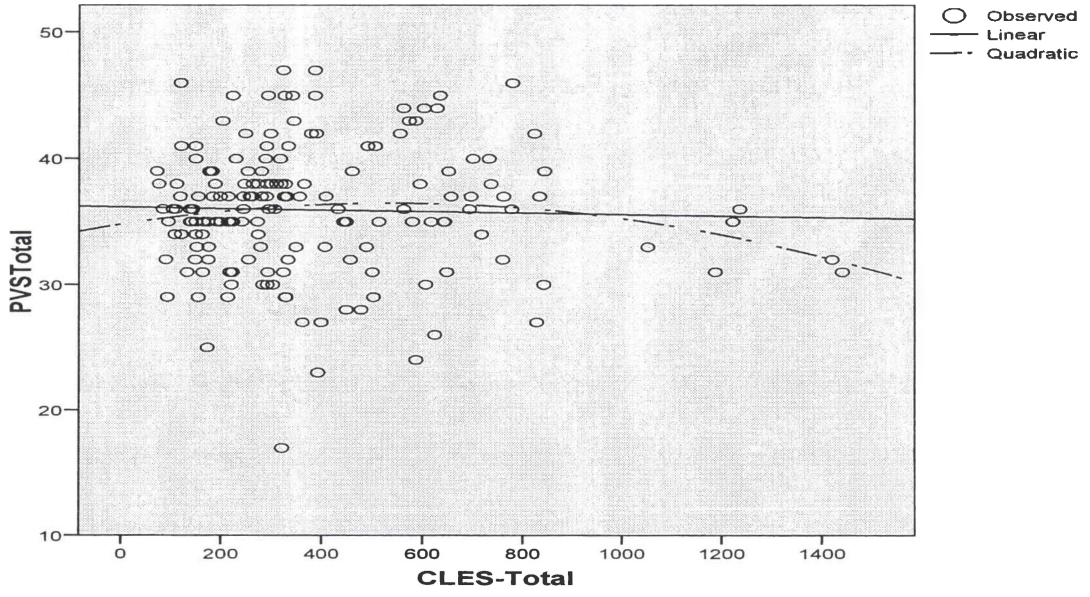

Figure 1. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-Total as the Predictor Variable and the PVS III-R Total as the Criterion Variable

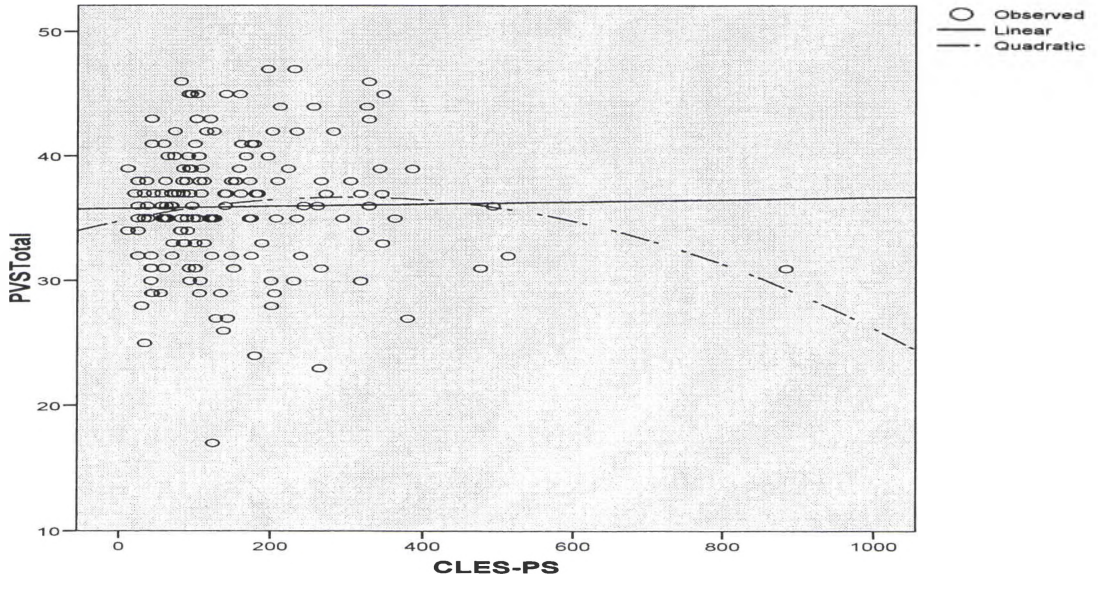

Figure 2. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-PS as the Predictor Variable and the PVS III-R Total as the Criterion Variable

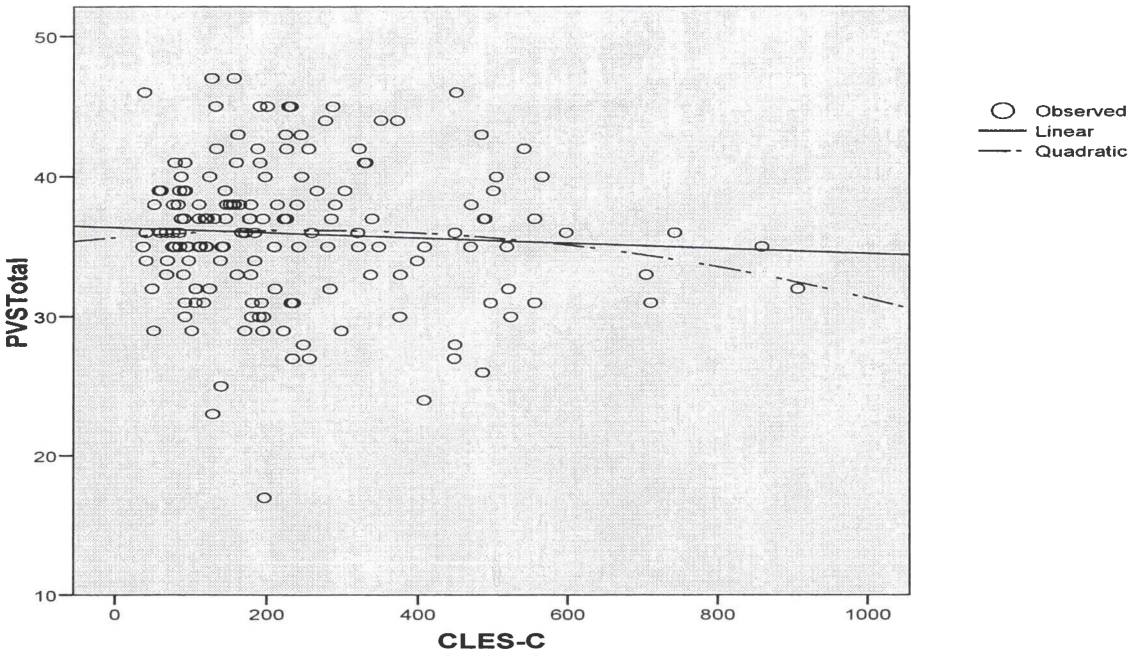

Figure 3. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-C as the Predictor Variable and the PVS III-R Total as the Criterion Variable

Table 4

Linear and Quadratic Regression Analyses Completed with the CLES-Total (Predictor Variable) and the PVS III-R Commitment, Control, and Challenge Subscales (Criterion Variables)

	CLES-Total			
	Linear		Quadratic	
PVS III-R Commitment	t = .651	p = .516	t = .427	p = .670
PVS III-R Control	t = -1.256	p = .211	t = .984	p = .327
PVS III-R Challenge	t = -.570	p = .569	t = .661	p = .510

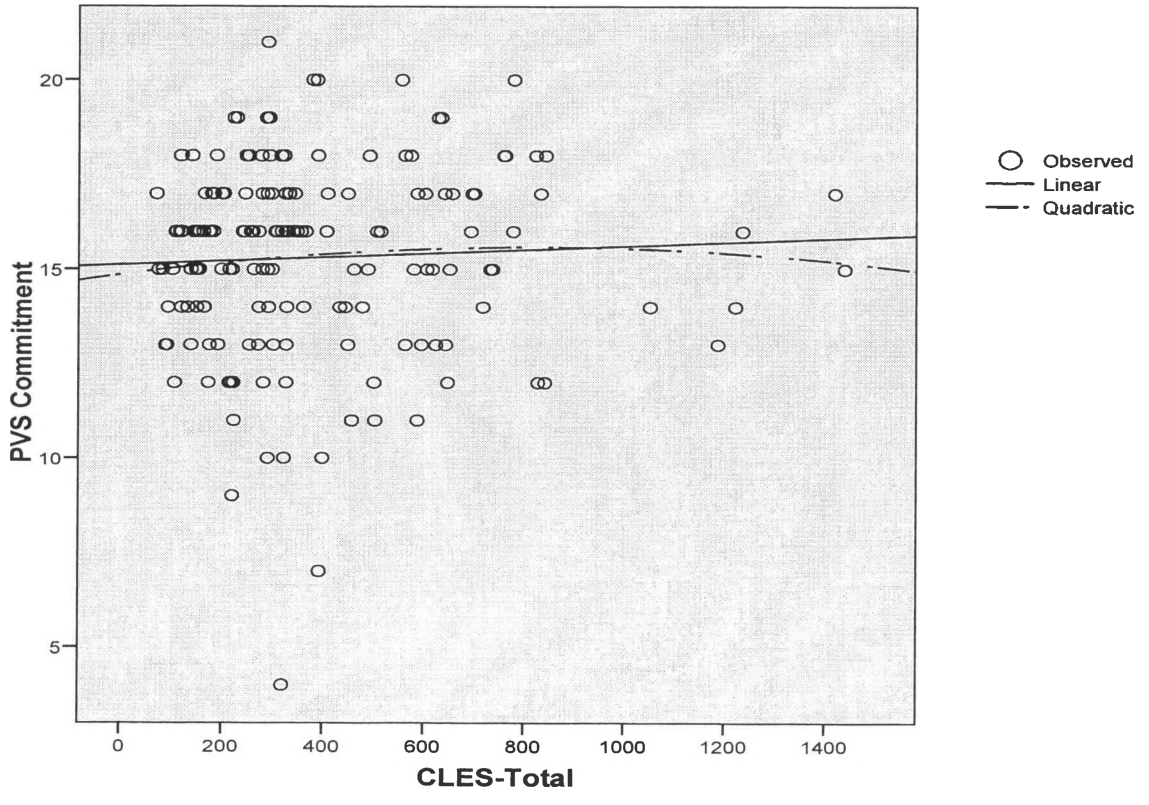

Figure 4. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-Total as the Predictor Variable and the PVS III-R Commitment Subscale as the Criterion Variable

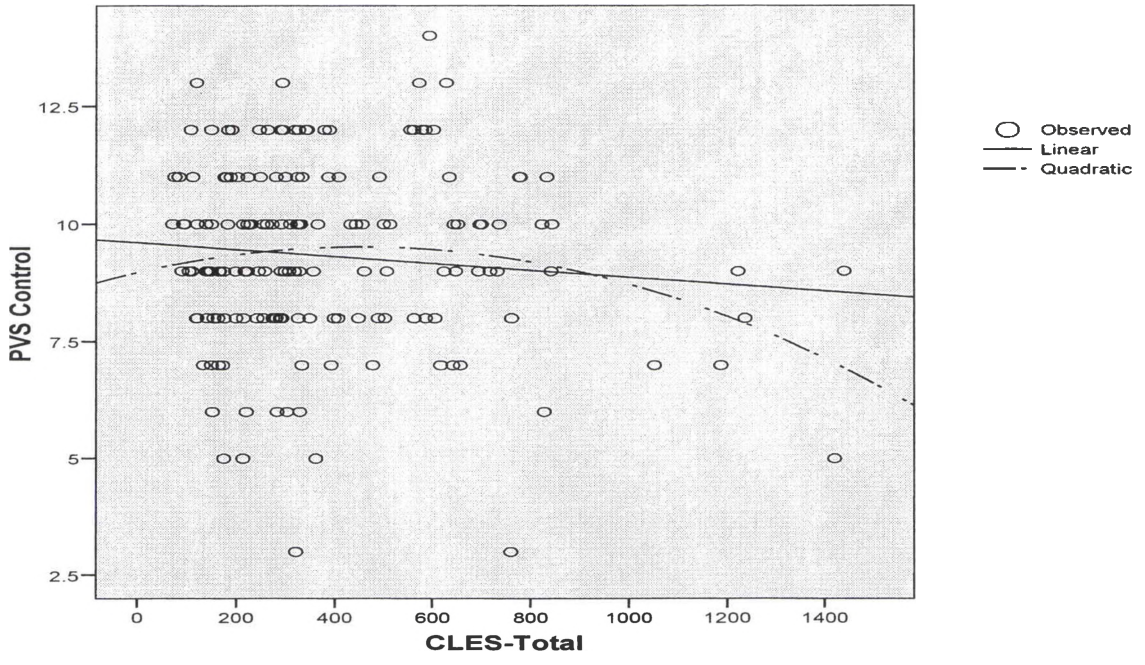

Figure 5. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-Total as the Predictor Variable and the PVS III-R Control Subscale as the Criterion Variable

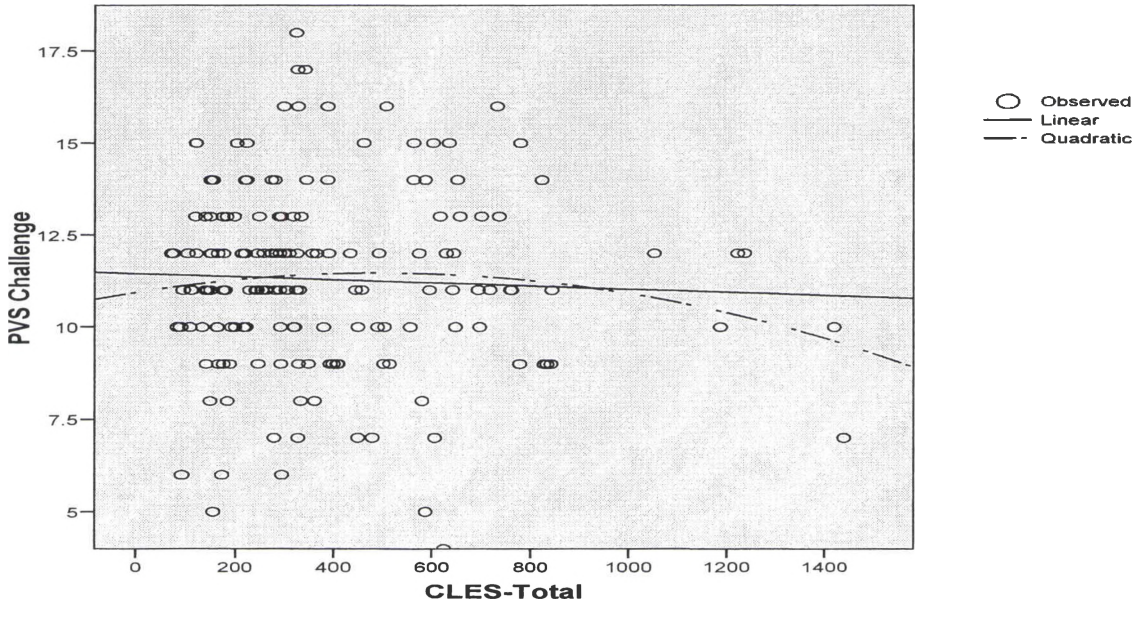

Figure 6. Scatterplot of Linear and Quadratic Regression Analyses with the CLES-Total as the Predictor Variable and the PVS III-R Challenge Subscale as the Criterion Variable

Table 5

Demographic Variables Summarized by Frequency and Percentage

Variable	Frequency	Percentage
Gender		
Male	40	24.4%
Female	124	75.6%
Religion		
Catholic	126	77.0%
Christian	12	7.3%
Lutheran	1	0.6%
Methodist	3	1.8%
Episcopal	1	0.6%
Protestant	5	3.0%
Islam	1	0.6%
Atheist	3	1.8%
Agnostic	4	2.4%
None	8	4.9%
Race/Ethnicity		
Caucasian	156	95.2%
African American	1	0.6%
Asian American	1	0.6%
Hispanic American	3	1.8%
Middle Eastern	1	0.6%
Other	2	1.2%
Living Status		
Single	161	98.2%
Married	2	1.2%
Unmarried, Living with Sig. Other	1	0.6%
Age		
17	2	1.2%
18	86	52.4%
19	53	32.3%
20	16	9.9%
21	5	3.0%
22	1	0.6%
24	1	0.6%

Table 5...cont.

Demographic Variables Summarized by Frequency and Percentage

Variable	Frequency	Percentage
Psychotherapy		
Yes	33	20.1%
Never	131	79.9%
Psychotropic Medication		
Yes	22	13.4%
Never	142	86.6%
Drug Use		
Yes	40	24.4%
Never	124	75.6%
Alcohol Use		
Yes	12	7.3%
Never	152	92.7%

Table 6

Gender Differences in History of Early Life Stressors and Resilience

	Gender				
	Male (N = 40)		Female (N = 124)		t
	M	SD	M	SD	
CLES-Total	412.15	243.50	377.27	272.23	.727
CLES-PS	168.03	101.11	142.58	122.58	1.188
CLES-C	244.13	153.02	234.69	175.58	.304
PVS III-R Total	36.40	5.99	35.77	4.76	.677
PVS III-R Commitment	14.90	3.28	15.44	2.26	-1.174
PVS III-R Control	9.68	2.37	9.21	1.83	1.298
PVS III-R Challenge	11.83	2.26	11.11	2.54	1.582

** $p < .05$

Table 7

Differences in Presence of Psychotherapy on History of Early Life Stressors and Resilience

	Psychotherapy				
	Yes (N = 33)		Never (N = 131)		t
	M	SD	M	SD	
CLES-Total Version 1	464.73	335.47	365.89	239.20	1.94
CLES-PS Version 1	172.24	172.27	142.88	99.77	1.28
CLES-C Version 1	292.48	200.75	223.02	159.11	2.12**
PVS III-R Total	33.70	5.95	36.49	4.69	-2.89**
PVS III-R Commitment	14.36	2.85	15.55	2.42	-2.42**
PVS III-R Control	9.18	1.78	9.36	2.03	-.459
PVS III-R Challenge	10.12	3.228	11.58	2.18	-3.09**

** $p < .05$

Table 8

Differences in Use of Psychotropic Medication on History of Early Life Stressors and Resilience

	Psychotropic Medication				
	Yes (N = 22)		Never (N = 142)		t
	M	SD	M	SD	
CLES-Total Version 1	437.23	345.59	377.81	248.71	.985
CLES-PS Version 1	171.68	192.99	145.24	102.14	.979
CLES-C Version 1	265.55	186.48	232.57	167.52	.846
PVS III-R Total	32.59	4.93	36.44	4.91	-3.42**
PVS III-R Commitment	14.64	2.46	15.42	2.56	-1.34
PVS III-R Control	8.82	1.84	9.40	1.99	-1.29
PVS III-R Challenge	9.14	2.81	11.62	2.27	-4.62**

** $p < .05$

Table 9

Differences in Use of Illegal Drugs on History of Early Life Stressors and Resilience

	Illegal Drugs				
	Yes (N = 40)		Never (N = 124)		t
	M	SD	M	SD	
CLES-Total Version 1	363.90	222.89	392.84	275.47	-.603
CLES-PS Version 1	136.15	95.50	152.86	124.43	-.778
CLES-C Version 1	227.75	154.25	239.98	175.20	-.395
PVS III-R Total	35.48	5.30	36.07	5.01	-.647
PVS III-R Commitment	14.83	2.42	15.47	2.58	-1.39
PVS III-R Control	9.63	2.23	9.23	1.89	1.11
PVS III-R Challenge	11.03	2.85	11.37	2.36	-.764

** $p < .05$

Table 10

Differences in Use of Alcohol on History of Early Life Stressors and Resilience

	Alcohol Use				
	Yes (N = 12)		Never (N = 152)		t
	M	SD	M	SD	
CLES-Total Version 1	512.17	278.90	375.80	260.34	1.74
CLES-PS Version 1	166.92	132.31	147.36	117.08	.552
CLES-C Version 1	345.25	171.23	228.45	167.44	2.32**
PVS III-R Total	35.08	4.21	35.99	5.14	-.597
PVS III-R Commitment	14.17	2.52	15.40	2.54	-1.62
PVS III-R Control	9.00	1.41	9.35	2.01	.588
PVS III-R Challenge	11.83	2.17	11.24	2.51	.790

** $p < .05$

medication, were less resilient as measured by the PVS III-R Total and PVS III-R Challenge subscale (See Table 8).

An examination of differences on CLES and PVS III-R scores between participants who have and have not used illegal drugs indicated no differences on either of the scales or subscales (See Table 9). An examination of differences on CLES and PVS III-R scores between participants who have and have not used alcohol indicated that those individuals who have used alcohol, compared to those individuals who have not used alcohol, reported more stress on the CLES-C (See Table 10).

CHAPTER IV

DISCUSSION

The present study was aimed at investigating how early life stressors can impact later levels of resilience. Research in the past has focused primarily on individuals who have experienced high levels of early life stressors (Benishek, 1996; Cohen, 1991; Eckenrode et al., 1991; Erickson et al., 1989; Hunter & Chandler, 1999; James, 1994; Kobasa, 1979; Kobasa et al., 1982; Lowenthal, 1998; Vondra et al., 1990; Waysman et al., 2001; Werner, 1989; Zeanah, 1993), whereas little research has focused on those individuals who have experienced minimal to moderate levels of early life stressors. Thus, the present study hypothesized a curvilinear relationship between stressors and resilience, i.e., hypothesizing that college students who have experienced a moderate level of adverse life events during childhood would be more resilient than college students who have experienced either minimal or extreme stress during childhood. A moderate amount of life stress was thought to result in greatest resilience because moderate stress was assumed to facilitate the development of coping skills and, consequently, future resilience without overwhelming the individual's developing coping abilities, as might be in the case of great stress.

However, two-step curvilinear regression analyses with the PVS III-R Total as the criterion variable and the CLES-Total, CLES-PS, or CLES-C as the predictor variable

showed a non significant linear or curvilinear relationship between history of early life stressors and later levels of resilience. Furthermore, two-step curvilinear regression analyses with the CLES-Total as the predictor variable and the PVS III-R Commitment subscale, PVS III-R Control subscale, or PVS III-R Challenge subscale as the criterion variable showed a non significant linear or curvilinear relationship between history of early life stressors and later levels of resilience.

The results did not support the hypothesized curvilinear relationship, but they were also inconsistent with past research indicating that more early life stress results in lower levels of resilience (Brooks, 1994; Eckenrode et al., 1993; Edwards et al., 2003; Erickson et al., 1989; Feinauer, Mitchell, Harper, & Dane, 1996; Harrington et al., 2006; Kashubeck & Christensen, 1992; Khoshaba & Maddi, 1999; LaGreca, 1985; Maddi, Wadhwa, & Haier, 1996; Mash & Wolfe, 1991; Sheppard & Kashani, 1991; Vondra et al., 1990; Westman, 1990). The lack of replication of past research in this area suggests that flaws may exist within the present study's method or the instruments used to measure the variables in question, rather than the proposed hypothesis.

Several potential reasons might explain this lack of significant results during primary analyses. First, participants were asked to recall early life stressors from ages 0-12 years. A focus on retrospective memory may have resulted in the inaccurate recall of traumatic events or their remembered intensity (either over or underestimating the event's emotional impact). Either possibility would result in an inaccurate measure of early life stressors. Ideally, giving participants the opportunity to subjectively rate the intensity of their early life stressors would allow for a more accurate measure of how each event impacted each individual. However, this necessitated participants looking back several

years to evaluate subjective intensity and it is possible that their subjective intensity ratings were inaccurate. For example, a six-year-old who moves and has to adjust to a new school, new classroom teacher, and a new neighborhood may consider this stressor much more traumatic than a 19-year-old, remembering that he or she moved at the age of six.

Additionally, by addressing such an extensive age period (from ages 0-12 years), it is possible that an individual's endorsement of several minor early life stressors (e.g., beginning school, birth of a sibling), especially with the inclusion of "positive" life stressors (e.g., outstanding personal achievement) could combine to exceed the total of a very traumatic early life stressor (e.g., death of a parent). The lengthy time period resulted in participants' total LCU scores in this study varying more widely, compared to previous studies that used the original scoring versions of the CLES. In future research, focusing on stressors that Coddington identified as more traumatic life stressors (e.g., death of a friend, divorce of your parents) rather than less traumatic life stressors (e.g., outstanding personal achievement, a new adult moving into your home) may be more indicative of an accurate measure of how early life stressors can impact later levels of resilience.

Finally, as a retrospective study, the original scoring of the CLES needed to be altered, invalidating the original normative data and psychometric properties established by Coddington. Thus, although the CLES is a well-published measurement of early life stressors, the present study's retrospective, subjective measurement of early life stressors and lack of normative data could have contributed to the non significant findings, despite

the possibility that there is no curvilinear relationship between early life stressors and later levels of resilience.

Secondary analyses with the demographic variables in the present study revealed significant relationships involving the participants' history of psychotherapy, psychotropic medication, and/or use of alcohol. To summarize these findings, participants who have been in psychotherapy (compared to those who have not) reported more early life stressors and less resilience, participants who have taken psychotropic medication (compared to those who have not) were less resilient, and participants who used alcohol (compared to those who have not) reported more early life stressors. These results suggest that individuals who have a history of early life stressors may turn to alcohol and/or be more likely to require psychotropic medication and/or psychotherapy. Additionally, those individuals who enter therapy or use medication have lower levels of resilience than those who do not enter therapy or use psychotropic medication. These results coincide with previous research suggesting that individuals who have been subjected to an increased amount of early life stressors are more likely to encounter an increased number of difficulties as adults (e.g., mental health problems) (Edwards et al., 2003; Harrington et al., 2006; Werner, 1989; Wicks et al., 2005) and, subsequently, may have the propensity to seek out the assistance of a psychiatrist or counselor. Similarly, the results of this study are consistent with past research in suggesting that individuals who have been subjected to early life stressors are more likely to use substances (e.g., alcohol) as a means to cope with these stressors (Lawlor et al., 2005). This suggests that the modified version of the CLES may have some construct validity. The indirect association between stress, resilience, and psychotherapy, medication, and/or alcohol

(e.g., participants who have been in psychotherapy report more early life stressors and less resilience) when examining demographic variables in this study is in the direction that would be predicted, although not indicative of a significant relationship between early life stressors and later levels of resilience when examining this study's primary curvilinear analyses.

A replication of this study should consider several modifications. First, although the CLES is a very good measure of early life stressors if used as originally intended (with children looking back over the past year), a different, more suitable measure of early life stressors that has been empirically validated to administer to young adults and examine early life stressors should be developed or used. It was originally hypothesized that by modifying the original scoring of the CLES, it would be more suitable for the present study. However, after primary analysis, it appears that modifying the original scoring of the CLES may have contributed to the non significant findings. The CLES has been deemed a reliable instrument for measuring early life stressors in previous studies. However, when it was modified in the present study, the CLES may not have been a good measure of a broader span of early life stressors (those occurring over a timeframe of 0-12 years instead of looking back only at the last year of life). Additionally, the rating scale descriptors on the modified CLES (e.g., 4 = "extreme negative feelings," 2 = "moderate negative feelings") could have influenced participants' responses by using a "negative" descriptor as opposed to other, more neutral, labels (e.g., 4 = "extreme feelings," 2 = "moderate feelings") that could have been used. Or, possibly labels more to the point (e.g., 4 = "extremely stressful," 2 = "moderately stressful") could have been used.

The validity of the CLES, if it were to be modified again for the same purposes, might be assessed by interviewing both the child (or adolescent) and his or her parent to check the accuracy of the child's retrospective memory. As stated before, it is possible that the intensity and frequency of early life stressors may be inaccurate due to having this college aged population assess stressors from the ages of 0-12. Thus, by having both the child and parent complete the CLES, the researcher could compare responses and check for accuracy.

An evaluation of the scoring of the PVS III-R as a potential contributor to problems in this study's methodology is difficult due to the fact that the authors of the PVS III-R do not allow the scoring algorithms to be released. However, the validity and reliability of the PVS III-R has been demonstrated in numerous studies using this measure (Florian, Mikulincer, & Taubman, 1995; Lawler & Schmied, 1992; Nowack & Hanson, 1983; Rush, Schoel, & Barnard, 1995; Solcova & Tomanek, 1994; Thompson & Wendt, 1995).

Modern life continues to be inherently and inevitably stressful. Participants' responses on the CLES-PS and CLES-C revealed numerous traumatic events throughout their childhood. Specifically, participants in this study experienced the death of a family member, divorce, failing a grade in school, changing residences on several occasions, and many other early life stressors. Research has supported the commonsense notion that individuals are undoubtedly affected by these early life stressors and some grow to be resilient, whereas others do not. The present study hypothesized that subjecting individuals to a moderate number of early life stressors (rather than too few or too many) would increase their propensity to become resilient adults. This hypothesis was not

supported. However, it remains imperative that research continue in this area of the literature, as it is not foreseeable that life stressors will cease or that the negative impact associated with these life stressors will somehow be thwarted.

APPENDIX A

Demographic Information Sheet

Participant Number: _____

Age: _____

Religion: _____

Gender: M: _____ F: _____

Living Status (check all that apply):

Single _____
Married _____
Divorced _____
Remarried _____
Unmarried and living with significant other _____

Race/Ethnicity:

Caucasian _____
African American _____
Indian American _____
Asian American _____
Hispanic American _____
Spanish American _____
Middle Eastern _____
Other (please specify) _____

Please check all that apply:

I receive treatment (psychotherapy, counseling, etc.) for a psychological problem:

currently/during college	_____ YES	_____ NO
prior to college	_____ YES	_____ NO
never	_____ YES	_____ NO

I have taken prescribed psychotropic medication
(e.g., antidepressant, tranquilizer):

currently/during college	_____ YES	_____ NO
prior to college	_____ YES	_____ NO
never	_____ YES	_____ NO

I have used illegal drugs of any kind:

currently/during college	_____ YES	_____ NO
prior to college	_____ YES	_____ NO
never	_____ YES	_____ NO

I drink 2 or more alcoholic drinks, on average, per day:

currently/during college	_____ YES	_____ NO
prior to college	_____ YES	_____ NO
never	_____ YES	_____ NO

APPENDIX B

Coddington Life Events Scales for Preschool Children (CLES-PS)

Instructions: For each event listed below, mark how often it occurred from ages 0-6. If the event listed below occurred during your first six years of life (up until your 7th birthday), circle the intensity and frequency of each event. For example, if an event occurred one time at intensity 3, you would circle the "1" under the heading Intensity = 3. If an event occurred twice during your first six years and resulted in different feelings of intensity, for example, you would circle the "1" under the heading Intensity = 3 and the "1" under the heading Intensity = 1. If an event did not occur at all during your first six years of life, put an "X" over the word "No."

Intensity Scores, as indicated below, refer to the following scale:
4 = extreme negative feelings
3 = high negative feelings
2 = moderate negative feelings
1 = minimal or no negative feelings

During your first six years of life, did you experience...		**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
		How many times?			**How many times?**			**How many times?**			**How many times?**		
1. Death of a parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
2. Death of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
3. Death of a grandparent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
4. Death of a close friend	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
5. Hospitalization of a parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
6. Hospitalization of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
7. Being hospitalized for illness or injury	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

During your first six years of life, did you experience...		Intensity=4			Intensity=3			Intensity=2			Intensity=1		
		How many times?			How many times?			How many times?			How many times?		
8. Divorce of your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
9. Marital separation of your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
10. Start of a new problem between your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
11. End of a problem between your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
12. Remarriage of a parent to a step-parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
13. Birth of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
14. Loss of a job by your father or mother	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
15. Major increase in your parents' income	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
16. Major decrease in your parents' income	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
17. Change in your father's or mother's job so (s)he has less time in the home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
18. Mother or father beginning work outside the home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
19. A new adult moving into your home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
20. Beginning school or preschool	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
21. Move to a new school or preschool	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
22. Start of a new problem between you and your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

During your first six years of life, did you experience…		**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
		How many times?			**How many times?**			**How many times?**			**How many times?**		
23. End of a problem between you and your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
24. Outstanding personal achievement (special prize)	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
25. Recognition for excelling in a sport or other activity	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
List any events that occurred prior to age six but were not listed above.													
26.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
27.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
28.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

END OF THE CLES-PS

APPENDIX C

Coddington Life Events Scales for Preschool Children (CLES-PS)
Life Change Units (LCU) Scores

During your first six years of life, did you experience…	**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
	How many times?			**How many times?**			**How many times?**			**How many times?**		
	0	**1**	**2+**	**0**	**1**	**2+**	**0**	**1**	**2+**	**0**	**1**	**2+**
1. Death of a parent	0	89	178	0	67	134	0	45	89	0	22	45
2. Death of a brother or sister	0	59	118	0	44	89	0	30	59	0	15	30
3. Death of a grandparent	0	30	60	0	23	45	0	15	30	0	8	15
4. Death of a close friend	0	38	76	0	29	57	0	19	38	0	10	19
5. Hospitalization of a parent	0	51	102	0	38	77	0	26	51	0	13	26
6. Hospitalization of a brother or sister	0	37	74	0	28	56	0	19	37	0	9	19
7. Being hospitalized for illness or injury	0	57	118	0	44	89	0	30	59	0	15	30
8. Divorce of your parents	0	78	156	0	59	117	0	39	78	0	20	39
9. Marital separation of your parents	0	74	148	0	56	111	0	37	74	0	19	37
10. Start of a new problem between your parents	0	44	88	0	33	66	0	22	44	0	11	22
11. End of a problem between your parents	0	21	42	0	16	32	0	11	21	0	5	11
12. Remarriage of a parent to a step-parent	0	62	124	0	47	93	0	31	62	0	16	31
13. Birth of a brother or sister	0	50	100	0	38	75	0	25	50	0	13	25

During your first six years of life, did you experience…	Intensity=4			Intensity=3			Intensity=2			Intensity=1		
	How many times?			How many times?			How many times?			How many times?		
	0	1	2+	0	1	2+	0	1	2+	0	1	2+
14. Loss of a job by your father or mother	0	23	46	0	17	35	0	12	23	0	6	12
15. Major increase in your parents' income	0	21	42	0	16	32	0	11	21	0	5	11
16. Major decrease in your parents' income	0	21	42	0	16	32	0	11	21	0	5	11
17. Change in your father's or mother's job so (s)he has less time in the home	0	36	72	0	27	54	0	18	36	0	9	18
18. Mother or father beginning work outside the home	0	47	92	0	36	71	0	24	47	0	12	24
19. A new adult moving into your home	0	39	78	0	29	59	0	20	39	0	10	20
20. Beginning school or preschool	0	42	84	0	32	63	0	21	42	0	11	21
21. Move to a new school or preschool	0	33	66	0	25	50	0	17	33	0	9	17
22. Start of a new problem between you and your parents	0	39	78	0	29	59	0	20	39	0	10	20
23. End of a problem between you and your parents	0	22	44	0	17	33	0	11	22	0	6	11
24. Outstanding personal achievement (special prize)	0	23	46	0	17	35	0	12	23	0	6	12
25. Recognition for excelling in a sport or other activity	0	23	46	0	17	35	0	12	23	0	6	12

APPENDIX D

Coddington Life Events Scales for Children (CLES-C)

Instructions: For each event listed below, mark how often it occurred between the ages of 7 and 12. If the event listed below occurred between ages 7 and 12 (up until your 13th birthday), circle the intensity and frequency of each event. For example, if an event occurred one time at intensity 3, you would circle the "1" under the heading Intensity = 3. If an event occurred twice between the ages of 6 and 12 and resulted in different feelings of intensity, for example, you would circle the "1" under the heading Intensity = 3 and the "1" under the heading Intensity = 1. If an event did not occur at all between ages 6 and12, put an "X" over the word "No."

Intensity Scores, as indicated below, refer to the following scale:
4 = extreme negative feelings
3 = high negative feelings
2 = moderate negative feelings
1 = minimal or no negative feelings

From the ages of 7-12, did you experience…		**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
		How many times?			**How many times?**			**How many times?**			**How many times?**		
1. Death of a parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
2. Death of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
3. Death of a grandparent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
4. Death of a close friend	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
5. Death of a pet	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
6. Hospitalization of a parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
7. Hospitalization of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

From the ages of 7-12, did you experience...		Intensity=4			Intensity=3			Intensity=2			Intensity=1		
		How many times?			How many times?			How many times?			How many times?		
8. Being hospitalized for illness or injury	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
9. Divorce of your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
10. Marital separation of your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
11. Start of a new problem between your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
12. End of a problem between your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
13. Remarriage of a parent to a step-parent	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
14. Birth of a brother or sister	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
15. Loss of a job by your father or mother	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
16. Major increase in your parents' income	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
17. Major decrease in your parents' income	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
18. Change in your mother's or father's job so that s(he) has less time at home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
19. Mother or father beginning work outside the home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
20. A new adult moving into your home	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

From the ages of 7-12, did you experience...		Intensity=4			Intensity=3			Intensity=2			Intensity=1		
		How many times?			How many times?			How many times?			How many times?		
21. Beginning the first grade	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
22. Moving to a new school district	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
23. Failing a grade in school	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
24. Suspension from school	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
25. Start of a new problem between you and your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
26. End of a problem between you and your parents	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
27. Failing to achieve something you really wanted	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
28. Appearance in juvenile court	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
29. Becoming involved with drugs	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
30. Stopping the use of drugs	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
31. Finding an adult who really respects you	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
32. Outstanding personal achievement (special prize)	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
33. Being invited to join a special organization	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
34. Recognition for excelling in a sport or other activity	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

From the ages of 7-12, did you experience…		**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
		How many times?			**How many times?**			**How many times?**			**How many times?**		
35. Becoming an adult member of a church	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
List any events that occurred from the ages of seven through twelve but were not included in the list above													
36.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
37.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
38.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
39.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+
40.	No	0	1	2+	0	1	2+	0	1	2+	0	1	2+

END OF THE CLES-C

APPENDIX E

Coddington Life Events Scales for Children (CLES-C)
Life Change Units (LCU) Scores

From the ages of 7-12, did you experience…		**Intensity=4**			**Intensity=3**			**Intensity=2**			**Intensity=1**		
		How many times?			**How many times?**			**How many times?**			**How many times?**		
		0	**1**	**2+**	**0**	**1**	**2+**	**0**	**1**	**2+**	**0**	**1**	**2+**
1. Death of a parent		0	109	218	0	82	164	0	55	109	0	27	55
2. Death of a brother or sister		0	86	172	0	65	129	0	43	86	0	22	43
3. Death of a grandparent		0	56	112	0	42	84	0	28	56	0	14	28
4. Death of a close friend		0	52	104	0	39	78	0	26	52	0	13	26
5. Death of a pet		0	40	80	0	30	60	0	20	40	0	10	20
6. Hospitalization of a parent		0	52	104	0	39	78	0	26	52	0	13	26
7. Hospitalization of a brother or sister		0	47	94	0	35	71	0	24	47	0	12	24
8. Being hospitalized for illness or injury		0	53	106	0	40	80	0	27	53	0	13	27
9. Divorce of your parents		0	73	146	0	55	110	0	37	73	0	18	37
10. Marital separation of your parents		0	66	132	0	50	99	0	33	66	0	17	33
11. Start of a new problem between your parents		0	44	88	0	33	66	0	22	44	0	11	22

From the ages of 7-12, did you experience...		Intensity=4			Intensity=3			Intensity=2			Intensity=1		
		How many times?			How many times?			How many times?			How many times?		
		0	1	2+	0	1	2+	0	1	2+	0	1	2+
12. End of a problem between your parents		0	27	54	0	20	41	0	14	27	0	7	14
13. Remarriage of a parent to a step-parent		0	53	106	0	40	80	0	27	53	0	13	27
14. Birth of a brother or sister		0	50	100	0	38	75	0	25	50	0	13	25
15. Loss of a job by your father or mother		0	37	74	0	28	56	0	19	37	0	10	19
16. Major increase in your parents' income		0	28	56	0	21	42	0	14	28	0	7	14
17. Major decrease in your parents' income		0	29	38	0	22	44	0	15	29	0	7	15
18. Change in your mother's or father's job so that s(he) has less time at home		0	39	78	0	29	59	0	20	39	0	10	20
19. Mother or father beginning work outside the home		0	40	80	0	30	60	0	20	40	0	10	20
20. A new adult moving into your home		0	41	82	0	31	62	0	21	41	0	10	21
21. Beginning the first grade		0	20	40	0	15	30	0	10	20	0	5	10
22. Moving to a new school district		0	35	70	0	28	53	0	18	35	0	9	18
23. Failing a grade in school		0	45	90	0	34	68	0	23	45	0	11	23
24. Suspension from school		0	30	60	0	23	45	0	15	30	0	8	15
25. Start of a new problem between you and your parents		0	43	86	0	32	65	0	22	43	0	11	22

From the ages of 7-12, did you experience...		Intensity=4			Intensity=3			Intensity=2			Intensity=1		
		How many times?			How many times?			How many times?			How many times?		
		0	1	2+	0	1	2+	0	1	2+	0	1	2+
26. End of a problem between you and your parents		0	34	68	0	26	51	0	17	34	0	9	17
27. Failing to achieve something you really wanted		0	28	56	0	21	42	0	14	28	0	7	14
28. Appearance in juvenile court		0	33	66	0	25	50	0	17	33	0	8	17
29. Becoming involved with drugs		0	38	76	0	29	57	0	19	38	0	10	19
30. Stopping the use of drugs		0	23	46	0	17	35	0	12	23	0	6	12
31. Finding an adult who really respects you		0	20	40	0	15	30	0	10	20	0	5	10
32. Outstanding personal achievement (special prize)		0	34	68	0	26	51	0	17	34	0	9	17
33. Being invited to join a special organization		0	15	30	0	11	23	0	8	15	0	4	8
34. Recognition for excelling in a sport or other activity		0	21	42	0	16	32	0	11	21	0	5	11
35. Becoming an adult member of a church		0	21	42	0	16	32	0	11	21	0	5	11

APPENDIX F

Personal Views Survey III-Revised (PVS III-R)

Please answer the following 18 questions to the best of your ability and as honestly as possible. This is important for report accuracy. There are no right or wrong answers.

---

0 = Not at all true
1 = A little true
2 = True
3 = Very true

---

1. By working hard, you can always achieve your goal.	0 1 2 3
2. I don't like to make changes in my everyday schedule.	0 1 2 3
3. I really look forward to my work.	0 1 2 3
4. I am not equipped to handle the unexpected problems of life.	0 1 2 3
5. Most of what happens in life is just meant to be.	0 1 2 3
6. When I make plans, I'm certain to make them work.	0 1 2 3
7. No matter how hard I try, my efforts usually accomplish little.	0 1 2 3
8. I like a lot of variety in my work.	0 1 2 3
9. Most of the time, people listen carefully to what I have to say.	0 1 2 3

10. Thinking of yourself as a free person just leads to frustration. 0 1 2 3

11. Trying your best at what you do usually pays off in the end. 0 1 2 3

12. My mistakes are usually very difficult to correct. 0 1 2 3

13. It bothers me when my daily routine gets interrupted. 0 1 2 3

14. I often wake up eager to take up life wherever it left off. 0 1 2 3

15. Lots of times, I really don't know my own mind. 0 1 2 3

16. Changes in routine provoke me to learn. 0 1 2 3

17. Most days, life is really interesting and exciting for me. 0 1 2 3

18. It's hard to imagine anyone getting excited about working. 0 1 2 3

END OF THE PVS III-R

APPENDIX G

PVS III-R Percentile Rank Averages

Percentile	Total Hardiness Score	Corresponding Level
99	48	High Level Of Hardiness
95	44	
90	42	
80	39	
75	38	
70	37	
60	35	Moderate Level Of Hardiness
50	32	
40	30	
30	27	Low Level Of Hardiness
25	26	
20	26	
10	23	
5	22	
1	18	

APPENDIX H

Researchers Script for Instructions to Participants

1. Arrive early to set-up room.

2. Give each participant a packet and pencil as they enter the room.

3. Ask participants to find a seat and inform them they are not permitted to speak to each other.

4. Have each participant fill out data sheet to obtain credit for their Introductory Psychology class (forms are available in the psychology office).

5. Once all participants have arrived, read the informed consent form aloud. Ask participants if they have any questions. After answering any questions, ask participants to sign the informed consent form.

6. Ask participants to complete the demographic information sheet.

7. Remind participants of the importance of being honest and forthright in their responses.

8. Ask participants to complete instruments in the order they were presented, then return to the researcher. Clarify that the CLES-PS is looking back at stressors from the ages of 0-6 (up until their 7th birthday) and that the CLES-C is looking back at stressors from ages 7-12 (up until their 13th birthday).

9. Participants are given the written debriefing form.

APPENDIX I

Informed Consent Form

Project Title:	Resilience as a Function of Retrospective Memory of Early Life Stressors
Investigator(s):	Jessica Bryan and John Korte, Ph.D. (faculty sponsor)
Description of Study:	Participants will be asked to complete a demographic information sheet, a survey regarding history of stressful life events from ages 0-6 and 7-12, and a resilience survey.
Adverse Effects and Risks:	Participants will be asked about a variety of past adverse experiences (e.g., death of a parent, suspension from school). It is possible that some traumatic memories may be triggered. The participant may leave any or all questions blank or withdraw from the study at any time without penalty. Additionally, participants who experience discomfort are encouraged to contact The University of Dayton's Counseling Center in Gosiger Hall (229-3141).
Duration of Study:	This study will take approximately 45 minutes to 1 hour to complete.
Confidentiality of Data:	The participant's name will be kept separate from the data. A participant number will be generated using a coding system. The participant's name will not be identified in any document resulting from this study.
Contact Information:	Participants may contact Jessica Bryan (570-337-0763) or the faculty sponsor, Dr. John Korte (937-229-2169, John.Korte@notes.udayton.edu), if they have any questions or problems following completion of the study. Participants may contact Dr. Greg Elvers, the chair of the Research Review and Ethics Committee, (greg.elvers@notes.udayton.edu, 937-229-2171, SJ 312) if they have any questions regarding their rights in psychological studies as outlined by the APA code of ethics.
Consent:	"I have been satisfactorily informed of the above research project and its potential risks. I have voluntarily decided to participate in this study and the investigator named above has adequately answered any and all questions I have about this study. I am aware that this study is confidential and my name will, in no way, be associated with my

responses. I agree to answer as honestly as possible and I will not share any aspects of this study with others until after completion of data collection. I may also leave any and/or all of the questions blank if I so desire. Should I not wish to finish this study after it has begun, I may leave at any time and will receive full credit. Additionally, I have been made aware that I will receive a debriefing form following completion of this study."

Participant Signature	Student's Name (printed)	Date

Witness Signature	Date

APPENDIX J

Debriefing Sheet

As a participant in this study, you are entitled to a debriefing sheet that describes the nature of the study, Resilience as a Function of Retrospective Memory of Early Life Stressors. The hypothesis of the present study is that college students who experience a moderate number of stressful life events during childhood will be more resilient (or able to bounce back from adversity) than college students who experience either numerous or only a minimal number of stressful life events during childhood.

Children and adolescents in today's society are faced with many stressful life events throughout their young lives. They are subjected to parental drug use, divorce, poverty, and numerous other stressful life events. Consequently, extensive research has been done with these children and adolescents who tend to suffer the greatest negative impact. However, a subset of this population, despite these risks, turn out to be resilient individuals who bounce back or recover from early life stressors (Werner, 1992). Additionally, at least one study of human (Freud & Burlingham, 1943) and one study of animal subjects (Gordon, 2001) suggest that a moderate number of stressors and/or a moderate amount of felt stress may contribute to the development of resilience.

If you have any questions, please contact the investigator, Jessica Bryan (570-337-0763). Please consult the articles listed below for further information pertaining to this topic. Thank you for your time. I will ensure that you receive research credit for your participation.

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Contact Information:

Participants may also contact the faculty sponsor, Dr. John Korte (937-229-2169, John.Korte@notes.udayton.edu), if they have any questions or problems following completion of the study. Participants may contact Dr. Greg Elvers, the chair of the Research Review and Ethics Committee, (greg.elvers@notes.udayton.edu, 937-229-2171, SJ 312) if they have any questions regarding their rights in psychological studies as outlined by the APA code of ethics.

University of Dayton Counseling Center:

Participants who experience any discomfort are encouraged to contact The University of Dayton Counseling Center in Gosiger Hall (937-229-3141). Undergraduates, graduate assistants, and law students pay a Counseling Center fee prior to their first year and are not charged further for services. The Counseling Center's hours are Monday through Friday, 8:30am-4:30pm.

Assurance of Privacy:

The present study is looking at the relationship between stressors and resilience and is not evaluating participants personally in any way. Responses on all surveys will be confidential and identified only by a participant number in the data set.

APPENDIX K

Permission to Use the PVS III-R

To this graduate student and his or her University:

Let this letter serve as formal permission to use the PVS III-R, latest version of the Personal Views Survey, in your graduate research project. There are several criteria for using our test that you should know before you begin your data collection.

1. The PVS III-R test is copyrighted and the name is trademarked. We do not permit reproduction of this test without our permission. This includes all forms of the test and includes electronic media. We will send you the PVS III-R through hard copy, fax, or email a copy of the test that we permit you to reproduce.
2. We permit you to reproduce the PVS III-R that we send you only for this study's data collection.
3. In order to score the survey, you must purchase online administration from us at the cost of .50 cents per test administration. This permits you to enter the data on your end. We do not enter the data for you. This system renders an output of raw scores for each test administration on total hardiness and its components of commitment, control, and challenge.
4. In addition to the $.50 charge per administration, we charge $20.00 for our PVS III-R Internet Instruction manual that contains relevant statistics you need to make data comparisons with our standard data base and a body of relevant hardiness research. You can access this manual once you purchase online test administration.
5. We do not provide algorithms to end-users as this is a for profit organization.
6. We can provide you with a text file of your data at the cost of $20.00.

Thank you for your interest and good luck in your graduate research.

Salvatore R. Maddi *Deborah M. Khoshaba*

The Hardiness Institute, 4425 Jamboree, Suite 140
Newport Beach, California 92660

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